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ABSTRACT

This study examined the institutional capacity and financial base of rural community colleges to provide access and economic development. It employed the U.S. Department of Education's Integrated Postsecondary Education Data Base System (IPEDS) Finance Module to compare revenue and expenditure categories for fiscal years 1992-93 and 1996-97 for small, medium, and large rural community colleges using the typology of public community college developed by Katsinas and Lacey. To develop appropriate per student FTE data, institutions had to have responded to the IPEDS Fall Enrollment and Finance Modules for both years--83.5% did so in fiscal year 1993 and 84.3% in fiscal year 1997. The study found: (1) significantly higher expenditures per FTE student--nearly $2,500 higher for small rural community colleges; and (2) significant differences in the revenue patterns at rural community colleges, compared with the universe of public (including suburban and urban) community colleges. Rural community colleges received a much lower share of their total budgets from local sources, and are therefore more dependent upon state funding. The higher non-tuition related cost of attendance in rural areas restricts the ability of rural community colleges to compensate for the shortfall of state dollars from tuition. The study also found that in constant dollars, total revenue declined between fiscal year 1993 and fiscal year 1997, despite five of the best economic years for state budgets since the 1960s. Includes recommendations for state policy. Appended are ANOVA trials. (Contains 156 references.) (KP)

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A Study of Institutional Capacity and Financial Base at Rural Community Colleges.

J. Lee Johnson

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An Abstract of

A Study of Institutional Capacity and Financial Base at Rural Community Colleges

by

J. Lee Johnson

Submitted as partial fulfillment of the requirements for

the Doctor of Philosophy Degree in

Higher Education Administration

This study examined the institutional capacity and financial base of rural community colleges to provide both access and economic development. It employed the U.S. Department of Education's Integrated Postsecondary Education Data Base System Finance Module to compare revenue and expenditure categories for fiscal years 1992-93 and 1996-97 for small, medium, and large rural community colleges using the typology of public community colleges developed by Katsinas and Lacey (in press). To develop appropriate per student FTE data, institutions had to have responded to the IPEDS Fall Enrollment and Finance Modules for both years; 83.5% did so in FY1993 and 84.3% in FY1997.

This study found (1) significantly higher expenditures per FTE student—nearly $2,500.00 higher for small rural community colleges; and (2) significant differences in the revenue patterns at rural community colleges compared to the universe of public community colleges. Rural community colleges received a much lower share of their total budgets from local sources, and are therefore more dependent upon state funding. The

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higher non-tuition related cost of attendance in rural areas restricts the ability of rural community colleges to compensate for the shortfall of state dollars from tuition. (3) The study found that in constant dollars, total revenue declined between FY1993 and FY1997, despite five of the best economic years for state budgets since the 1960s.

Recommendations for state policy include: (1) Geography matters: Higher per student FTE costs at rural community colleges should be recognized as a matter of state policy. (2) Poverty matters: Property taxes across all regions of the state should be equalized as a matter of state policy. (3) Size matters: State investment in public higher education should recognize the higher costs associated with providing expensive "high tech" academic programs at their rural community colleges. (4) Economies of scale matter: States should fund base operations of their rural community colleges before using student FTE formula funding. (5) Low tuition matters: State policy should keep tuition low at rural community colleges.

A Dissertation

entitled

A Study of Institutional Capacity and Financial Base at Rural Community Colleges

by

J. Lee Johnson

Submitted as partial fulfillment of the requirements for

the Doctor of Philosophy degree in

Higher Education Administration

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CHAPTER ONE

INTRODUCTION

Introduction

America's rural communities are the source of our natural resources and many of our nation's core values. Education in the United States has evolved and centered upon supporting the changing economic needs of the communities for skilled workers. Recent years, however, have seen heightened focus on assuring that rural people have access to opportunities to participate in America's prosperity, but much of rural America is threatened by a cycle of economic decline (RCCI, 1996). Killacky and Valadez (1995) commented that "we have a picture of a country divided into rural and urban components, with the two sides in conflict politically, socially, and economically" (p. 6). Rural communities face many uncertainties and challenges and need a working cooperation and contribution from federal and state agencies and the private sector to help mobilize their efforts for economic renewal. Their missions encompass a broad range of educational programming, from general education and transfer credit to vocational and technical degree programs, which has evolved and centered upon supporting the changing economic needs of the communities they serve. The premise is that the effectiveness of rural community colleges is relevant to the economic development of their communities.

The popularity of community colleges is in part driven by their philosophy of open access and non-selective admissions. Gleazer (1980) characterized their missions as "to encourage and facilitate lifelong learning with community as process and product" (p. 16). Their mission statements almost always stress access, which translates into a strong commitment to bring postsecondary programs and services to people who otherwise might not be able to access them. This has translated into service to underprivileged populations that ordinarily would not have an opportunity to attend four-year institutions. Lackey and Rowls (1989) noted three reasons why community and technical colleges were developed:

> First, they could focus on programs that are not normally offered by universities. Second, they were close to the jobs and could offer work-study arrangements. Third, they did not have the entrance requirements of the universities and could attract people with excellent technical ability but who might not do as well in the academic areas of study. (p. 44)

Cohen and Brawer report that "the community college certainly serves a broader sector of the local population than does any other higher education institution" (1996, p. 57). Vaughan believes that community colleges have been built upon a rich heritage and offer a diversified curriculum, serve the needs of the community, and open the doors of higher education to ever-broadening segments of society (1997, pp. 22-3). Koos (1925), Eells (1931), Vaughan (1982), Katsinas (1994a, 1996), Boone (1997), and other scholars in the field have noted that community colleges have advanced geographic access, popularized and democratized higher education beyond narrow elites, and by serving their local communities have removed barriers to participation in higher education. Eaton (1994a) stated "the community is perceived as an extraordinary means by which to realize the traditional American dream of upward mobility, financial success, self-sufficiency, and individual accomplishment" (p. 42). It is within this context that the rural community college can provide the impetus for community revitalization through offering programs and enhancing students' opportunities to succeed and earn a living.

In rural areas that have seen their industries leave, population decline follows the decline of the employment base, with young people leaving home after high school or leaving college for lack of job opportunities. Others who stay choose not to pursue further education, be it completing high school, community college, baccalaureate education, or beyond, because they do not see how that education will lead to a job that allows them to stay in the area in which they have lived all their lives. In contrast, rural areas that have seen rapid growth -- usually "urban sprawl" -- have seen their rural cultures overwhelmed, as low income residents fail to reap the benefits of an expanding economy (Rubin and Autry, 1998).

Rural America has few institutions other than community colleges that can function as a catalyst and help build a viable economy and educate people for a better life. Communities that have successfully related goals of access to education and economic development have rebuilt themselves using their natural and human resources to promote prosperity. Economic development creates jobs, income, and wealth while education and training help individuals gain access to good paying jobs. Without a strong economy rural people end up leaving their communities to find work, and those who lack education and skills that are required by an increasingly demanding workplace will not get the good jobs (RCCI, 1998). Their recognition of this catalytic role is nothing new. Ervin Harlacher, writing in 1969, suggested that community colleges recognize their "responsibility as a catalyst in community development and self-improvement" (p. 15).

By 1995, Killacky and Valadez would flatly conclude that "community colleges are poised to assume a leadership role for addressing social problems such as literacy, poverty, and education in rural communities" (p. 6). This goes beyond the access notions advanced by Koos, Eells and an earlier generation of community college scholars. By their very nature, rural community colleges are uniquely positioned to understand the needs and interact in ways that assist in providing opportunities and linking economic development and access to education. Thus, at the eve of a new century, initiatives and challenges of connecting together economic development and access to education have brought about an increasing focus on the role of rural community colleges and the promotion of a broader role regarding regional involvement, in addition to their traditional access function.

But does the financial capacity exist for the rural community college to play this catalytic role to provide *both* access and economic development? Answering this question empirically provides the impetus for this study.

Statement of the Problem

Katsinas (1996) stated that "implicit in much of the higher education literature is the notion that great homogeneity exists among and between community colleges in the United States" (p. 15). Relative to their urban and suburban counterparts, rural community colleges are generally invisible both in the higher education research literature and in federal and state policy-making circles. This is not a new phenomenon; a major reason for this has to do with methodological problems in the collection of data over many decades by the U.S. Department of Education. Without an agreed upon definition of community college topology, as exists for four-year degree granting institutions under the Carnegie Foundation for the Advancement of Teaching's classification system, no base line of empirical data regarding diversity and the size of the financial base of rural community colleges exists in this country making it difficult, if not impossible, for policy-makers at the federal and state levels to assess the relative extant institutional capacity of rural community colleges (Katsinas and Lacey, in press).

Katsinas (1996) noted that "there are eight separate and distinct subcategories for four-year institutions within the Carnegie classifications. As a result, reliable information on the varied types of four-year colleges is readily available" (p. 16). Without such a quantitative assessment for community colleges, policy-makers at the federal and state levels lack the basis to be able to assess if they are investing sufficient resources into these institutions such that they can play their role in delivering credit and non-credit programs to promote *both* access and economic development. Along that same line, at the 1962 conference State Directors of Junior Colleges and Coordinators of State Systems of 2-year Colleges, Henderson stated "there is an increasing need for accurate and comparable statistics for use not only as a management tool, but also as a research tool to measure and give direction to this growth" (p. 25). Even today, what is missing from the research literature at the national level is an objective analysis of financial data, based upon empirical revenue and expenditure data, by community college type. Filling this void provides the impetus for this study.

Purpose of the Study

The purpose of this study was to examine the institutional capacity of rural community colleges. This study examines the differences found in the revenue and expenditure patterns for publicly controlled rural community colleges, using the typology for community colleges developed by Katsinas and Lacey (in press). A central premise to this study is that the effectiveness of rural community colleges is relevant to both access to educational programs beyond high school and the economic development of their communities. Making use of the Finance Module of the U.S. Department of Education's Integrated Postsecondary Education Data System (IPEDS) information, the analysis will compare academic years 1992-93 and 1996-97 (2nd release - August 4, 1998). It will indicate: 1) whether revenue and expenditure patterns among peer rural community colleges have changed over time; 2) whether significant differences exist in the revenues and expenditures when the rural community colleges are classified as small, medium, and large; and 3) how revenue and expenditure patterns among peer community colleges in the three rural categories compare to overall averages for all publicly controlled community colleges in the United States.

Prior to the 1992 reauthorization of the Higher Education Act, federal regulations did not require postsecondary institutions to fill out IPEDS financial survey forms specifying revenue and expenditure data. Until that time, institutions voluntarily participated, leading to highly varied rates of participation between any two given years.

It is highly likely, Katsinas and Lacey (in press) have argued, that smaller institutions with smaller staffs and less sophisticated institutional research offices participated at much lower levels from year to year -- in the range of 15 to 30 percent -- than larger urban and suburban community colleges. Finally, since 1994, completing the IPEDS surveys became mandatory for colleges and universities to remain eligible for receiving federal financial aid dollars, providing a major incentive to institutions to fill out all nine of the IPEDS surveys. Therefore, the level of participation and compliance by two-year institutions in completing the IPEDS financial survey has improved the accuracy of the data base. This is underscored by the recent rural initiatives within the Office of Community Colleges Liaison (CCL) at the U.S. Department of Education described in Chapter Two below.

The topic of this study is not only important in a timely manner with respect to the major challenges facing all levels of higher education, but to rural community colleges in particular. At the national level, in 1997 the American Association of Community Colleges (AACC) chose to maintain its urban community college commission while disbanding its rural commission. In 1996, under the leadership of Jacqueline Woods, in the CCL within the U.S. Department of Education, an initiative to serve rural community colleges was begun. This initiative coincided with major efforts launched by the Ford Foundation in 1993 and the W. K. Kellogg Foundation in 1997. Finally, the creation of the Education Commission of the States Community College Policy Project, funded by the Metropolitan Life Foundation, also has brought increased attention by state policy-makers to community colleges. Should the empirical analysis prove formidable, it may lead to discussions that would focus on issues that could include appropriate levels of funding and/or benchmarking certain expenditure categories for publicly controlled rural two-year institutions. In this way this study could have significant benefit to both public and private rural community colleges, and in turn have policy implications at federal, state, and local levels.

Significance of the Study

A key concept important to this study is the relationship between the community college and economic development in the community. Recent years have seen a number of nationally respected foundations, public policy organizations, and public sector agencies expressing a renewed interest in using the rural community college as a tool to address both of these issues.

These organizations include the CCL within the United States Department of Education. During the past two years, the CCL has hosted a series of regional meetings specifically oriented toward rural community college officials to inform them of federal programs in which these institutions had previously not been active participants. This author has been in personal contact with officials within the CCL office who have indicated strong interest in this study (personal communication, Dr. Allen Cissell, October 15, 1998). Another indication of the interest in the rural community college is evidenced by the 10 year commitment on the part of the Ford Foundation to its Rural Community College Initiative (RCCI). Administered by MDC, Incorporated, of Chapel Hill, North Carolina, the RCCI was initiated in 1995 with the participation of 10 pilot colleges from economically distressed rural areas including Appalachia, the Lower Mississippi Delta, the

Border Region of Texas, the Four Corners Region of Arizona, Colorado, New Mexico, and Utah, and the Tribal Colleges located in the High Plains. This unprecedented 10-year commitment on part of the Ford Foundation was the first time in that foundation's history where its divisions of rural poverty and education had ever collaborated on a joint project. Presently, the W. K. Kellogg Foundation is building upon its 40 years of involvement with rural development and community college leadership programs to support new efforts related to rural community colleges. One of the most important Kellogg-supported initiatives has been Project ACCLAIM at North Carolina State University. A collaborative effort of state level community college officials and institutional leaders in Maryland, North Carolina, South Carolina, and Virginia, ACCLAIM has attempted to develop appropriate models that will help community colleges become catalysts to promote access and economic development, as well as to address pressing community needs in each of these states, all of which have a substantial rural population.

The twin themes of using the rural community college as a tool to advance and broaden access and to enhance economic development underlie all of these initiatives. It is not insignificant to note that the AACC published Edgar J. Boone's book, Community Leadership through Community-Based Programming: The Role of the Community College, and has formally endorsed the modeling ACCLAIM has fostered (1997). And, finally, the last year has seen the emergence of collaborative efforts of Mississippi State University and Alcorn State University to create a Center for Rural Community College Leadership, a multi-state consortium (Alabama, Arkansas, Louisiana, and Mississippi) of higher education and business leaders. Their desire is to create a national "League for

Innovation" emphasizing rural community colleges (Stephen G. Katsinas, personal communication, July 21, 1998).

The natural question is: Why all of the interest in rural community colleges, and why now? First is that federal and state policy-makers have been concerned with rural development policy in a direct way since the 1930s, which saw the creation of the Tennessee Valley Authority and the alphabet agencies of the New Deal. Later involvement came with the Appalachian Resource Commission of the Kennedy-Johnson years. Continuing federal interest is evidenced by the rural development division within the U.S. Department of Agriculture responsible for developing federal policies and programs to enhance rural development. The federal interest is nothing new, however it is likely that the globalization of markets and the greater volatility of farm commodities are causing the nature and direction of that involvement to change.

A second reason for all of the interest has to do with acceptance by public policy officials of a broader role for higher education institutions. In particular, the role of community colleges in rural areas as vehicles to promote both access and economic development. The need has been recognized by the various state governments, admittedly to varying degrees, to create a broad-based, universal adult education system that provides electronic information age access to postsecondary institutions -- community, junior, and technical colleges, as well as vocational schools that gained collegiate status–had been proposed by the Truman Commission in 1947, and was imbedded in many of master plans for universal access (to reduce geographic barriers) developed by most states in the period 1955-1975. This notion was reinforced by the federal student aid programs of the Higher

Education Act of 1965.[1] More recently, heightened federal interest has been evidenced by President Clinton direct references to community colleges in both his 1997 and 1998 State of the Union Addresses. In 1998, he said that "the Information Age is, first and foremost, an education age, in which education must start at birth and continue throughout a lifetime . . . we can make college as universal in the 21st century as high school is today" (p. 3).

Recent federal initiatives to promote economic development, beginning with the Reagan and Bush Administrations and continuing today, have also recognized the need for heightened collaboration in rural areas to ameliorate economic distress and to advance workforce training. The federal legislation that created Enterprise Zones (EZs) in urban areas included provisions creating an Enterprise Communities program for small, rural communities. Interagency meetings convened by federal Housing and Urban Development officials beginning with the Bush Administration of senior level civil service administrators responsible for delivering a broad range of federal programs, from job training (under Labor) to welfare (Health and Human Services), to education, have also served to focus the attention of policy-makers on new models and policies for rural development. These federal efforts have been to a certain extent replicated by increased coordination at the state level, and have been reinforced by the involvement of major foundations like Ford and Kellogg.

The overall conclusion from a review of current efforts is that a growing recognition exists among policy-makers that rural community colleges are players, if not *the key players,* in promoting policies and programs that might broaden access and widen the circle of opportunity through economic development. Recent years have seen sharp challenges to the assertion of Cohen and Brawer that size, not geography, is key to understanding differences among and between community colleges. The work of Katsinas (1994a, 1994b, 1996), Katsinas and Lacey (in press), and Killacky and Valadez's 1995 New Directions for Community College Series monograph, *Portrait of the Rural Community College*, as well as several of the reports of the RCCI suggest that geographic settings explain *much* of the differences among and between community colleges. They all argue that publicly controlled community colleges should be divided into urban, suburban, and rural categories.

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[1] January 1999 marks the 35th anniversary since Johnson Administration announced Civil Rights movement and passed a wave of social legislation, which the Higher Education Act of 1965 was a direct outgrowth (Sanders, 1975, p. 88)

In one of the more important articles on this subject, Katsinas (1996) argued that graduate programs in community college leadership should honestly discuss key differences in geographic settings that impact practice. Unfortunately, as Katsinas noted, most of the evidence regarding differences among and between settings in which leadership is to be exercised is of an anecdotal nature (p. 24). As will be demonstrated in Chapter 2, the literature on the community college is vastly tilted toward the multi-campus urban and suburban districts, and single campus urban community colleges. None of the institutional members of the prestigious League for Innovation in the Community College, which publishes many monographs and reports and is involved with partnerships with giant firms such as IBM and Microsoft, is a small, rural community college. It may be that rural community college leaders, who by definition have to be generalists given the lack of specialized staff, are not able to write for publication on a consistent basis as would the executive leadership within a large multi-campus districts of a Miami-Dade or Maricopa Community College. Still, the lack of a literature reinforces the false notion that all publicly controlled community colleges are exactly alike in both form and function.

In the last half of the twentieth century, publicly controlled two-year and four-year institutions have gone from serving fewer than 2 million students, who were primarily eighteen- to twenty-four-year old full-time residents to a mass system serving over 11 million traditional as well as non-traditional students. Because of this achievement, Millard (1991) observed that the contribution of research and broader and better education of the work force has added immeasurable value to the economic health and welfare of this nation's communities. He noted that most of the challenges that lie ahead for higher education will come from changing societal and economic conditions (pp. xi-xii). Put another way, the heart of the discussion surrounding the country's shift from an industrial to an information and service society has raised educational concerns as well as the demand for a better educated workforce. Reflecting upon the influence that community colleges have had, Cross commented that they are often bellwether institutions for change, and often are better suited to anticipate the inevitable need for a well-educated public by opening their doors of educational opportunity and devising new programs and adapting practices to meet the needs of previously unserved populations (1997, pp. ix-xx).

In the 1998 Economic Report of the President, Clinton stated that "education and training programs are of particular importance in the present economic environment as a means of preventing poverty and ensuring opportunity for all" (p. 23). Cavan (1995) argued that "economic development and community services provide outreach to our rural constituents" (p. 13). The basic characteristics Smith (1996) described as essential for rural community colleges to possess and promote economic development include: (1) access, (2) workforce training, (3) college transfer programs, and (4) continuing education programs (pp. 57-9). Additionally, the federal government has shown a recent emphasis on the importance of rural development using the Office of Community College Liaison in coordination with the departments of Housing and Urban Development, Agriculture, Commerce, and Health and Human Services. With emphasis, Cook in her 1998 publication Lobbying for Higher Education: How Colleges and Universities Influence Federal Policy, cited that "historically, national policy has contributed to their excellence and value, so the higher education community seeks to ensure that the government continues to be a positive force" (p. 4). The Committee for Education Funding report, Education Budget Alert for Fiscal Year 1998, noted that since the Johnson Administration's Great Society programs of 1965, federal investment in higher education has addressed financial barriers through federal grant, work-study, and loan programs and nonfinancial (academic, social, and cultural) barriers using TRIO programs (p. 80). These and other federal initiatives have rendered a framework for furnishing resources to prepare college-bound youths for the jobs of tomorrow.

This study adds to the limited body of literature probing dimensions of higher education finance and, specifically, the financial base and capacity of rural community colleges. One of the analytic difficulties confronting this study is the problem of determining the cost of education, as opposed to the more inclusive costs of operating institutions. Wattenbarger (1985) argued that state funding plans should be more consistent with community college operations for open access, curricular comprehensiveness, local control, low tuition, and responsiveness to local needs (pp. 270-3). If this study can depict that there are higher or lower educational expenditures per student FTE at these different types of institutions, then it makes the case for more and better informed policy-making, and could lead to the inclusion of provisions and exceptions in key federal education grant programs. These might include waivers made on the basis of institutional size and geographic location - sparseness of population or poverty rate within region - for federal Title III and Title IV programs including but not limited to the following: the TRIO programs for at-risk students, Institutional Aid and Endowment Building, The National Endowment for the Arts and the National Endowment for the Humanities Endowment Matching Grants Programs, Federal Supplemental Educational Opportunity Grants, Pell Grants, College Work-Study Program, Enterprise Communities Program in the Department of Housing and Urban Development, the Labor Department's Job Training Partnership Act, and the Fund for Rural America, a new initiative of the Department of Agriculture.

The higher education industry has often been characterized by its diversity of institutions in missions, functions, and governance. In 1996, Campbell, Leverty, and Sayles commented that "higher education is the largest area of state funding that is not constitutionally mandated, dictated by matching federal dollars or otherwise required" (p. 175). Recognizing this complexity, Cook (1998) stated, "the variety of types of institutions makes it especially difficult for the community to present a united front in

Washington and speak with a single voice" (p. 115). Specifically, a 1990 survey by Honeyman, Williamson, and Wattenbarger (1991) revealed many concerns on the part of state directors of community college systems, and indicated that community colleges faced a variety of critical financing problems. The survey results criticized underfunding, inadequate faculty salaries, limited state resources, insufficient property tax support, and deficient construction needs at the same time that none of the respondents indicated they were experiencing enrollment problems (p. 41). This reality clearly has significant policy implications, along the lines that Wattenbarger argued: " those involved in the legislative process increasingly make decisions regarding the financing of the community college that contradict the philosophical basis of the community college" (p. vii).

It has been over fifteen years since the National Commission on Excellence in Education released its 1983 report A Nation at Risk, and during that same period both federal and state funding have slipped to new lows. For example, Campbell, Leverty, and Sayles (1996) reported that from 1990 to 1995, state appropriations for community colleges rose by only 3 percent while enrollment and tuition increased 11 percent and 47 percent, respectively. They argued, "assuming even a modest 1.5% annual cost increase over the same period, real state support for community colleges actually decreased across the period" (p. 177). Community colleges are becoming even more vital by fostering comprehensive community - based education and economic development in their communities. Specifically, the slippage in federal and state funding and assistance in underwriting efforts for economic development or other social programs places rural community colleges at a severe disadvantage. That is, enabling laws differ significantly across the fifty states -- some disfavor categorical or non-formula components for funding of special projects. Often these laws have evolved in such a way that unintentional differences are left between county and district funding models. Clearly, rural community colleges lack the administrative and endowment bases to adequately sustain long-term support for their community programs and human resource development. If an empirical analysis can show that significant differences exist in sources of revenue per student FTE among rural community colleges and the national averages, it can justify alternative funding strategies and more informed policy-making.

Limitations and Delimitations

The available research on financing community colleges, particularly for those interested in assessing the different aspects of revenue and expenditure patterns relative to rural two-year institutions of higher education is limited. It is assumed that IPEDS is a representative data base for revenues and expenditures of rural community colleges. The study is limited to examining only publicly controlled two-year colleges. It is further limited to how well the institutions understood the IPEDS survey questions and that the prepared answers were as accurate as possible.

The analysis is built upon the classification system constructed by Katsinas and Lacey (in press). An important limitation of this study would be any errors in their scheme developed and used to classify public rural community colleges.

The study is restricted primarily to discussing federal involvement in postsecondary education and rural economic development. This restriction is undertaken in part because of the economic development initiatives expressed by the Clinton Administration and Congress. Additionally, since the working data set is not identified by state and there is great variability among the community colleges in terms of missions, governance, and methods of finance, discussing state initiatives would be beyond the scope of this study.

The study is restricted to the fiscal periods of 1992-93 and 1996-97. This restriction recognizes several factors: (1) the number of rural community colleges varied very little, (2) data from these two fiscal years is readily available and complicated only slightly by differences in data record lengths, and (3) economic and social data for these two time periods is available from the U.S. Bureau of the Census.

The strong national economy during the mid-1990s makes the period of fiscal years 1992-93 to 1996-97 an interesting period of study. The national economy moved from a recessionary period to a long period of growth and prosperity, where it currently resides. In general, higher education has to do well in good economic times because it must absorb enrollment growth and inflation during poor economic times. How well rural community colleges have done during this period of strong economic expansion is of particular interest. Since changes in a state's economic base generally lag behind those taking place nationally, this study will restrict its comments to factors influencing the national level.

The revenue and expenditure line items are total figures for small-, medium-, and large-sized rural community colleges. These figures do not indicate patterns of expenditures available to different types of students attending rural community colleges. Nor does the study determine the degree to which funds are equitably distributed among students from different income groups, racial and ethnic backgrounds, and ability levels.

This study does *not* separate or disaggregate by economically well off and poor areas across rural America. It also does not separate or disaggregate by state. The content of this study, however, might significantly supplement a discussion of factors affecting those colleges across the nation to statewide audiences such as lawmakers, educational leaders, corporate leaders, and the general public. In particular, for those policy-makers who wish to get resources and a helping hand to low income people for access to higher education, job training, and welfare to work, this study might provide an important understanding regarding the capacity of perhaps the single most important institution in rural America, the rural community college. It could provide an invitation for the public, administrative and academic officials, and state and national officials to discuss, debate, criticize, and suggest recommendations for meeting the broader funding needs of public education at secondary and postsecondary levels in rural communities.

Research Questions

This study was designed primarily to be exploratory or inductive research and to describe empirically what is going on among and between the revenues and expenditures of rural community colleges as defined by Katsinas and Lacey (in press). In his 1993 article Grounded Theory: An Alternative Approach to Research in Higher Education, Conrad reasons that inductive research is discovering and creating theory so as to guide future research (p. 280). He commented that an exploratory study is guided by research questions in order to facilitate the generation of theory (p. 281).

In her 1995 publication, Handbook of Research Methods: A Guide for Practitioners and Students in the Social Sciences, 2nd edition, Sproull expressed that not all research projects require hypothesis testing. Her reasoning for using research questions stemmed from the fact that insufficient information was available to formulate hypotheses, such as previous research on the topic. That is, the study is meant to explore some area more thoroughly in order to develop some specific hypothesis or prediction that can be tested in future research (pp. 41-42). Sproull points out that "hypotheses statements predict relationships between variables while research questions ask if a relationship exists," and that both research approaches are much the same except that research questions are interrogative and hypotheses are statements (p. 42).

Given that this research on rural community colleges is exploratory, coupled with the fact that information on the topic is nearly non-existent, the proposed methodology for conducting this study poses research questions to test the hypothesis and to guide the direction of data collection and analysis. It is anticipated that the answers to the following research questions will provide a baseline of objective, empirical data to support propositions that have only been supported by anecdotal evidence to date, and will allow other researchers to go beyond this exploratory study to explore further differences that might exist among and between urban, suburban, and rural community colleges.

The three primary research questions and related secondary research questions are as follows:

Primary Research Questions

1) Are there significant differences in the revenue and expenditure patterns between small-, medium-, and large-sized publicly controlled rural based community colleges, compared to the universe of publicly controlled community colleges from across the country for fiscal year 1992-93?

2) Are there significant differences in the revenue and expenditure patterns between small-, medium-, and large-sized publicly controlled rural based community colleges, compared to the universe of publicly controlled community colleges from across the country for fiscal year 1996-97?

3) Was there significant change in the revenue and expenditure patterns between small-, medium-, and large-sized publicly controlled rural based community colleges, compared to the universe of publicly controlled community colleges from across the country between fiscal years 1992-93 and 1996-97?

Secondary Research Questions

Each secondary research question appends to Primary Research Questions Numbers 1 - 3:

Does state, local, and federal support per FTE differ at publicly controlled rural community colleges compared to the universe of publicly controlled community colleges?

Does tuition income per FTE vary at publicly controlled rural community colleges compared to the universe of publicly controlled community colleges?

Does support from endowments, private gifts, and grants per FTE differ at publicly controlled rural community colleges compared to the universe of publicly controlled community colleges?

Do education and general expenditures per FTE vary at publicly controlled rural community colleges compared to the universe of publicly controlled community colleges?

Do non-education expenditures, such as auxiliary enterprises per FTE, vary at publicly controlled rural community colleges compared to the universe of publicly controlled community colleges?

Do salary and benefit expenditures per FTE differ at publicly controlled rural community colleges compared to the universe of publicly controlled community colleges?

Definition of Terms

To assure a common understanding, definitions are offered for the terms used here and throughout the study. The financial definitions for revenues and expenditures were provided by the Department of Education's National Center for Education Statistics as part of the general instructions of the annual IPEDS Finance Survey. The financial terms are intended to be consistent with an audited financial statement, and with definitions in the Financial Accounting and Reporting Manual for Higher Education published by the National Association of College and University Business Officers and the Audits of Colleges and Universities as amended in 1975 by the American Institution of Certified

Public Accountants. Finally, the seventh edition of Elementary Statistics by R. Johnson and fifth edition of Statistics for Management and Economics by Mendenhall, Reinmuth, Beavers, and Duhan were used as references in defining the statistical terms.

Revenues

Auxiliary enterprises refers to revenues generated by self-supporting operations of the institution that exist to furnish a service to students, faculty, or staff, and that charge a fee that is directly related to the cost of the service. Examples are food services, student health services, and college stores.

Current fund revenues refers to unrestricted gifts, grants, and other sources earned during the reporting period and restricted resources to the extent that such funds were expended for current operating purposes. Current fund revenues are by source and include tuition and fees, government appropriations, government grants and contracts, private gifts, grants, and contracts, endowment income, sales and services of educational activities, auxiliary enterprises, other sources, and independent operations.

Endowment income refers to the unrestricted and restricted income of endowments and the income generated by funds held in trust by others under irrevocable trusts.

Government appropriations (federal, state, and local) refers to all amounts received by the institution through acts by a legislative body, excepts grants and contracts. Funds are intended for meeting current operating expenses, not for specific projects or programs.

Government grants and contracts (federal, state, and local) refers to amounts received from governmental agencies that are for specific research projects, training programs, and similar activities for which amounts are received or expenditures are reimbursable under terms of a government grant or contract.

Independent operations refers to revenues and expenditures associated with operations independent of or unrelated to the primary mission of the institution. This category generally includes only those revenues and expenditures associated with major federally funded research and development centers.

Other sources refers to all revenues or expenditures not covered elsewhere. Examples include interest income on investments or miscellaneous sales and services.

Private gifts, grants, and contracts refers to revenues from private donors for which no legal consideration is involved and private contracts for specific goods and services provided to the funder as stipulation for receipt of the funds.

Sales and services of educational activities refers to revenues derived from the sales of goods and services that are incidental to the conduct of instruction, research or public service. Examples are film rentals, testing services, scientific and literary publications.

Tuition and fees refers to all tuition and fees (including student activity fees) assessed against students for educational purposes.

Expenditures

Academic support refers to those support services that are an integral part of the institution's primary mission of instruction, research, or public service. Examples are expenditures for library, academic computing support, academic administration, and personnel development.

Auxiliary enterprises refers to expenditures generated by self-supporting operations of the institution that exist to furnish a service to students, faculty, or staff, and that charge a fee for that is directly related to the cost of the service. Examples are food services, student health services, and college stores.

Current fund expenditures and transfers refers to the costs incurred for goods and services used in the conduct of the institution's operations. Current fund expenditures are by function and include budgeted expenses for instruction, research, plant and maintenance and operation, and the acquisition cost of capital assets.

Institutional support refers to expenditures for the day-to-day operational support of the institution, excluding expenditures for physical plant operations. The type of expenditures include general administrative services, legal, public relations, and fiscal operations.

Instruction refers to expenditures by departments, and other instructional divisions for both credit and non-credit activities. Examples are general academic instruction, occupational and vocational instruction, special session instruction, community education, preparatory and adult basic education, and remedial and tutorial instruction.

Mandatory transfers refers to transfers from the current fund that must be made in order to fulfill a binding legal obligation of the institution. Some examples are amounts set aside for debt retirement and interest or the institutional matching portion for Perkins Loans, Federal Supplemental Education Opportunity Grants and Primary Care Loans.

Nonmandatory transfers include those transfers from current funds made at the discretion of the governing board to service a variety of objectives, such as additions to loan funds, funds functioning as endowments, or funds set aside for voluntary renewals and replacement of plant.

Operation and maintenance of plant refers to expenditures for operations established to provide service and maintenance related to grounds and facilities used for educational and general purposes. Examples are utilities, fire protection, and property insurance.

Public service refers to expenditures for activities established primarily to provide non-instructional services beneficial to groups external to the institution. Examples are seminars, projects, and cooperative extension services.

Research refers to funds expended for activities specifically organized to produce research outcomes and commissioned by an agency either external to the institution or separately budgeted by an organizational unit within the institution. This category does not include expenditures for training programs.

Scholarships and fellowships refers to expenditures given in the form of outright grants and trainee stipends to individuals enrolled in formal course work, either for credit or non-credit.

Student services refers to funds expended for admissions, registrar activities, and activities whose primary purpose is to contribute to students' well-being and to their intellectual, cultural, and social development outside the context of formal instructional program. Examples are career guidance, counseling, and financial aid administration.

Total education and general employee compensation refers to total current funds expenditures for compensation -- total salaries and wages plus employee fringe benefits.

Total salaries and wages for education and general refers to total current funds expenditures for salaries and wages.

Statistical Terms

Alpha is the level of significance, or sometimes referred to as the critical value, used in determining the regions of rejection or acceptance. The most frequently used probability value for alpha is 0.05, however assignment may depend upon controlling the number of errors. For example, the more serious the error, the less likely for it to occur, and therefore a smaller probability is assigned.

Average refers to an arithmetic technique commonly used to measure central tendency of a quantitative population or sample and often referred to as the mean. The terms average and mean will be used interchangeably throughout this study.

Analysis of variance (ANOVA) refers to a statistical analysis used to test a hypothesis about several means as measured by the sum of squares of deviations from the mean. ANOVA provides for testing the null hypothesis - all means are equal - against the alternative hypothesis - at least one mean value is different - with a specified level of significance or alpha factor.

P-value refers to the probability that the test statistic could be the value it is or a more extreme value - in the direction of the alternative hypothesis - when the null hypothesis is true. The decision rule is if the p-value is less than or equal to the level of significance, alpha, then the decision must be to reject the null hypothesis and the result is said to be statistically significant. If the p-value is greater than the level of significance, then the decision must be to accept the null hypothesis and the result is determined to be statistically insignificant.

Quartiles refer to values of the variable that divide the ranked data in quarters; each set has three quartiles. For example, the first quartile indicates that, at most, 25 percent of the data are smaller than the value in question compared to the third quartile where, at most, 75 percent of the data are smaller than the value in question.

Variance refers to the average of the squared deviations of the measurements about their mean.

Other Terms

Community college is an institution which offers "certificate or degree programs through the Associates of Arts level and, with few exceptions, offers no baccalaureate degrees" (Carnegie Foundation, 1987, p. 7). The 1994 Carnegie Classifications indicated that 1,471 "Associate of Arts Colleges" served 6.5 million students, or 41 percent of the total students enrolled in U.S. institutions of higher education (p. 4). Additionally, the term "community college" will be used interchangeably with "two-year college," "junior college," and "technical college."

Gross Domestic Product (GDP) refers to production taking place in the United States and facilitates as a measure of economic activity.

Human Capital refers to the knowledge individuals acquire during their lifetime and use to produce goods, services, or ideas in market and non-market circumstances (Miller, 1996, p. 8).

IPEDS refers to the Integrated Postsecondary Education Data System conducted by the Department of Education's National Center for Education Statistics

IPEDS Universe refers to all publicly controlled two-year postsecondary institutions - urban, suburban, and rural - that were down loaded from the IPEDS data base at the time of this study.

Non-federal funds for education generated by federal legislation refers to spending excluded from the U.S. Budget for support in the form of federal grants, and guarantees and subsidies for loans made by banks and public and private lending authorities to postsecondary students loans such as Federal Family Education Loans, Perkins Loans, and State Student Incentive Grants, and Work-Study Program (U.S. Department of Education (NCES 97-383), 1997, pp. 12-3).

Off-budget support refers to federal money that has been excluded from the budget by law and include Federal Direct Student Loan program (William D. Ford Direct Loans) which began making loans as of July 1, 1994 (U.S. Department of Education (NCES 97-383), 1997, pp. 1, 12).

On-budget funding refers to federal programs that are generally set through Congressional appropriations (U.S. Department of Education (NCES 97-383), 1997, p.1).

Rural community college is based upon the Katsinas and Lacey (in press) definition which refers to institutions located outside of the 100 largest metropolitan service areas as defined by the U.S. Bureau of the Census. In addition, the basis Katsinas and Lacey use to describe small-, medium-, large-sized rural community colleges is student enrollment where small-sized is less than 1,000 students, medium-sized is greater than or equal to 1,000 students but less than 2,500 students, and large-sized are institutions with enrollment greater than or equal to 2,500 students (pp. 27-8).

Workforce development refers to the education and training programs for participants or those who wish to participate in the workforce, delivered through formal and informal means, that are designed to enhance the skills of people to gain or maintain socio-economic status (Katsinas, 1994b, p. 1). Workforce development revenues from governmental agencies are recorded under the categories of federal grants and contracts, state grants and contracts, and local grants and contracts. It should be noted that workforce development can also include certain grants and contracts such as National science Foundation undergraduate training grants that are not strictly workforce development, but workforce development represents a vast mix of funding under this category.

CHAPTER TWO

RELATED RESEARCH AND LITERATURE REVIEW

Introduction

This study proposes to study the institutional capacity of rural community colleges, and in particular, their ability to provide access and economic development. This chapter reviews the related literature pertaining to finance in order to assess how access has been treated in the literature, as well as how rural community colleges fit against the backdrop of federal and state economic development policy. In this way, the results of the empirical study presented in Chapters 3, 4, and 5 can be placed against the broader canvass of policy and institutional practice.

The investigator's intent is therefore to provide an understandable theoretical framework based upon empirical data that explains existing interrelationships that guide financial decisions and other related judgments for day-to-day practitioners and policy-makers alike. It is useful to place the proposed study of community colleges revenue and expenditure patterns within the larger context of the literature. An investigation of University Microfilms International (UMI) Digital Library of dissertations and theses revealed that of the over 1.5 million entries available as of September 4, 1998, just 3,462 or 0.2 percent addressed various topics involving community colleges. An additional sort of the community college dissertations revealed that just 4 pertained or dealt with financial issues, and were dated 1979, 1980, 1981, and 1987. A further investigation of the Educational Resources Information Center (ERIC) archive revealed 22,506 articles on community colleges between the years 1966 and 1998. Of these, only 47 or 0.002 percent were concerned with or involved financial issues. Finally, the 1994 ASHE Reader Series on Community Colleges, second edition, is comprised of 36 articles, of which 3 published in 1980, 1981, and 1991 -- had to do with community college finance. The point here is that the literature concerning community college finance is quite limited, as is the literature on rural community colleges generally.

The literature on the entire subject of rural community colleges is limited, and that of community college finance even more limited. In examining the Ohio Link on-line archive of books and monographs held within the combined libraries of public universities and community colleges across the State of Ohio, a total of only 5 books and monographs could be accessed using the search words "community college finance." Of these, only 3 were written within the past 20 years. And of these, only one, Breneman and Nelson's 1981 influential Brookings Institution-published work, Financing Community Colleges: An Economic Perspective, attempted to offer a comprehensive treatment of the subject, albeit from an economic-efficiency perspective.

The organization of this chapter begins with a brief review of the relevant literature on rural community colleges. This is followed by a section on community college finance and highlights the relevant and very limited literature on the varied revenue and expenditure patterns. A third section summarizes economic development while examining federal and state initiatives related to rural development and the use of the community college as a vehicle to foster such development and generate economic opportunity. This section is a lead-in to a discussion of relevant policy in rural areas, and in particular the emerging consensus that the rural community college is perhaps the most important, if not indispensable, educational institution within Rural America. A fourth section reviews the literature on state funding and tuition policy, with special focus on the higher non-tuition expenses related to the operation of and attendance at rural community colleges. This literature review sets up the argument that policy-makers at federal and state levels should *expect* significant variance in the revenue and expenditure patterns between the average for all publicly controlled community colleges and that of rural community colleges.

A final section reviews the Katsinas and Lacey (in press) Classification System for community colleges that was used by this study to categorize publicly controlled rural community colleges into small-, medium-, and large-size. This provides a starting point for the empirical data analysis of U.S. Department of Education's Integrated Postsecondary Education Data System (IPEDS) data that follows in Chapter Three. It is the empirical analysis of the major components of the revenue and expenditure patterns that lies at the heart of this study, in that taken together, they shed light on the relative institutional capacity of the rural community college to deliver both access and economic development.

A Brief Review of the Literature on Rural Community Colleges

Relevant to rural community colleges, Katsinas (1996) has argued that implicit in much of the higher education literature is the notion that great homogeneity exists among and between community colleges in the United States. While they share a commitment to open access, comprehensiveness, and responsiveness to local needs, community colleges are a diverse group of institutions. This diversity is reflected in geography, demography, governance, and institutional size. All affect college culture and the roles played by community college educators and leaders who complete graduate programs in higher education. What works in a large, multi-campus urban community college system does not necessarily work in a small rural setting, and vice versa.

Unfortunately these differences have not been adequately recognized in the community college literature. The tendency to treat community colleges as homogeneous institutions prevails. In their 1981 book, Financing Community Colleges: An Economic Perspective, Breneman and Nelson offer a prime example for the advocacy of high-tuition and high-financial aid policies. Their underlying assumption that the widespread availability of federal student financial aid removed the need for states to continue low or no tuition at their publicly controlled community colleges to promote access may make sense in the abstract (pp. 29-30). But it does not account for the fact that students in different regions have different non-tuition costs associated with college attendance. Students in urban areas, for example, usually can access publicly subsidized mass transit which makes attendance relatively easy. In rural areas, however, students bear the transportation costs and find the purchase of a used automobile is a prerequisite to attending college (Katsinas, 1996). Field trips by Stephen G. Katsinas (personal communication, September 17, 1998) as part of a Ford Foundation-sponsored research project to rural community colleges in Massachusetts and Minnesota, states with tuition in excess of $1,900 per year, confirmed that the cost of college attendance is well beyond the maximum available federal Pell grant of $2,350 per year, causing many who start college on a full-time basis to drop out or revert to part-time status in their second year of study.

Since World War II, the late Howard R. Bowen was probably this nation's leading authority on the subject of higher education finance. His scholarly perspective was molded following service in presidencies of both public and private universities. Bowen's path-breaking research on economics and finance of higher education led the Association for the Study of Higher Education to name its career achievement award, the highest honor it makes, in his honor. Dr. Bowen's writing about higher education finance and economics spanned over a quarter century, and its scope and concepts continue to be well-cited today, as researchers and policy-makers reflect on what drives the costs of higher education. For example, his 1980 publication, The Costs of Higher Education: How Much Do Colleges and Universities Spend per Student and How Much Should They Spend?, was listed as part of the bibliography of the August 15, 1996 U.S. General Accounting Office report, Higher Education: Tuition Increases Faster than Household Income and Public Colleges' Costs. One of Bowen's most important contributions was his "revenue theory of cost," which advanced the notion that cost is determined by the amount of revenue institutions receive. This argument highlights the leveraging of revenue and the cumulative effect it has on expenditures.

The revenue theory of cost provides a guide as to why costs between institutions may vary so much. Bowen (1981) commented that "the range of differences in cost per student is astonishing" (p. 21), noting that colleges or universities involved with graduate and professional studies are likely to have higher costs per student than institutions concentrating on the instruction of freshmen and sophomores. Finn's (1989) sentiment was that "Bowen has sagely noted that colleges tend to maximize revenues and then spend everything they take in," and he characterizes the matter as an "impulse that often leads to needless outlays and self-indulgent consumption" (p. 181). Bowen (1981) argued that cost differences may be affected by location in urban or rural settings, by location in different parts of the country, and simply by the size of the institution (p. 21). He also observed that "differences in expenditure remain even when only educational costs are considered and when the institutions being compared seem to have similar missions, location, and size and to be rendering services of similar quality" (p. 21).

Bowen also argued that prevailing costs were also influenced by informed estimates and short-term and long-term economic conditions. For example, in 1980 Bowen emphasized that "useful cost comparisons, either over time or among institutions, require that expenditures be related to the number of units of service rendered" (1980a, p. 4). A reliable indicator of output in his view would be the number of student units adjusted for teaching load. This measurement affords a basis for comparing educational costs per unit. Bowen contended, however, that the costs per student unit is intentionally conservative, and is not a perfect measure. Instead, he argued that students are themselves the *input* of the education process *rather* than the result of it. The works of Alexander W. Astin with his 1985 book Achieving Educational Excellence and others substantiate this view.

The National Commission on the Role and Future of State Colleges and

Universities (1986) reported that "the bottom line outcome of education is improving students' competence, knowledge and skills" (p. 36). Clearly, the real outcomes of higher education tend to gravitate toward learning, development, cultural advancement, and economic growth. Despite the ongoing concern of identifying an appropriate unit of service for colleges and universities, the debate remains unresolved today and likely will remain so.

Clearly, both societal *and* institutional factors play a large role in determining the costs of higher education. In 1981, Bowen argued that diversity among institutions was a *desirable* trait, however with it came an "amazing" disparity of educational cost differences among *types* of institutions of higher education. In his examination of two-year and four-year publicly controlled institutions, Bowen commented that "in no respect are colleges and universities more diverse than in their unit costs-that is, in the amount they spend per student" (p. 21). These cost differentials would suggest that differences do exist among and between institutions, based upon the type of educational program delivered, as well as in the base costs of delivery for specific geographic settings (urban, suburban, or rural). Such differences, if they can be identified and quantified, have significance to public policy-makers at the federal and state levels, and particularly at the state level, given the primary role of states in providing base operating budget support. Finally, Boyer (1989) articulated, "how to protect these prerogatives while still answering to the larger community is the essential challenge" (p. 193).

In 1978 at the Fifth David D. Henry Lecture at the University of Illinois entitled the Socially Imposed Costs of Higher Education, Bowen stated that "total current expenditures grew from $2.2 billion in 1949-50 to an estimated $41.9 billion in 1975-76 - a nineteen-fold increase. Part of this remarkable growth was due to an explosion of enrollment and part was due to price inflation" (p. 12). He also offered another explanation for the rapid growth in expenditures - that they had been induced in part by social demands for new services, new activities, and new standards of operation. This widespread phenomenon affects higher education, nonprofit organizations, municipal, state, and federal agencies making them subject to social pressures resulting in new and increased expenditures (pp. 12-3), he argued.

Bowen (1978) concluded that socially imposed costs could be divided into two groups: (1) costs for actual program operations and (2) costs associated with compliance or information (p. 15). These costs are like a tax, and "to finance them, organizations must either increase their revenues or make offsetting reductions in regular costs" (p. 17). Additionally, Bowen predicted that higher education would have more difficulty in shifting social costs, and reasons that for-profit enterprises were to be financed mostly by product sales while higher education receives only a part of its income from tuition and fees and the rest from state appropriations, gifts, and investment income. In order for institutions to recover from increased social costs, "they must usually enlist the aid of legislators and donors as well as raise prices in the form of tuitions and fees" (pp. 18-9).

In the 1990s, two decades after Bowen's writing, the grim reality is that the ability to control financial dimensions such as rising costs and the amount spent per students garners great public attention. Cook (1998) pointed out that "in addition to concern about the high cost of a college education, there were growing doubts about its value" (p. 36).

Publications such as the 1998 report of the National Commission on the Cost of Higher Education,[2] Straight Talk about College Costs and Prices, or the U.S. General Accounting Office's (GAO) reports Higher Education: Tuition Increasing Faster Than Household Income and Public Colleges' Costs and Higher Education: Students Have Increased Borrowing and Working to Help Pay Higher Tuitions, have spotlighted escalating tuition and its effect on students and their families. The GAO's 1998 follow-up report, Higher Education: Tuition Increases and Colleges' Efforts to Contain Costs, highlighted that for two-year and four-year publicly controlled colleges and universities, the size of tuition increases was linked to several financial variables such as revenues from government appropriations, grants, contracts, gifts and changes in costs to provide education. Even as resources have become tighter, higher education continues to be criticized for its bureaucratic and inefficient operations.

In 1993, McPherson, Schapiro, and Winston observed that many of the complaints about higher education related to the perceptions of wasteful spending and nebulous educational outcomes (1993a, p. 3). In a related view on financial administration at community colleges, Lorenzo (1994) expressed that as a result of hard times, community colleges have had to find proper balance between their missions and plans and margins by choosing among legitimate preferences, alternative strategies, and competing interests (p. 198). Bowen (1980a) may have put the much needed understanding about the effective use of assets in simpler terms with his observation that behaviors and factors that determine the costs of higher education, which are a combination of both societal and institutional factors (p. 1).

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[2] Public Law 105-18 (Title IV, Cost of Higher Education Review, 1997) established the National Commission on the Cost of Higher Education as an independent advisory body and called for a comprehensive review of college costs and prices.

For state policy-makers concerned with community colleges, these "amazing differences" in revenues and expenditures have important public policy implications for reasons that include, but are not limited to the following: First, in most states, state enabling law sets the "ground rules" by which the institutions were created. These ground rules can include the process by which local property taxes for capital as well as operating purposes are assessed and approved, tuition and fee policies are developed, and rules governing participation in incentive-funded and performance-funded categorical programs are established (Katsinas, 1996). A second reason has to do with state participation in the appropriations process, both in request and allocation phases. Given the differences in ground rules between and even within states, Bowen's 1981 conclusion is not surprising that:

> substantial differences in costs do not necessarily connote significant differences in outcomes. That is why the costs for institutions of similar missions and similar levels of quality may differ, and it is why institutions of similar cost may have different educational outcomes. (p. 23)

As Lackey and Rowls (1989) noted "the goals of higher education institutions are important, but they vary from one school to the next" (p. 47). The expressed notion is that the efficiency of educational institutions and their related costs are bound to vary naturally while efficiency implies lowest cost as well as achieving social benefit. Therefore, while some states fund economic development activities and others do not, Bowen (1980a) argues "lumpiness" in allocating resources influences the scale of operations, the economies of scale, and tends to push costs up (pp. 178-9).

A Review of the Literature On and Related to Community College Finance

As one reviews the very limited literature of community college finance, the same goals appear time after time. In 1977, Bowen commented that basic principles concerning access were eloquently summarized some thirty years before, in the influential report of the 1947 President's Commission on Higher Education (p. 38). Cohen and Brawer (1996) found that the Commission, popularly called the Truman Commission, reported that "because around half of the young people can benefit from formal studies through grade 14, the community colleges have an important role to play," and also suggested changing the name junior college to community college because of the expanded functions (p. 13). They further commented that the Commission recommended an increase in the number of community colleges to promote geographic access and expansion of terminal programs for civic and social responsibility and occupational programs that would prepare skilled, semiprofessional, and technical workers (p. 220). Eaton (1994a) believed the effect of the Truman Commission was to create a unique identity for two-year institutions. She elaborated and stated that the Commission "launched the contemporary community college and its accompanying commitment to access . . . the effect of increasing the community college's prominence and assisting it in its quest for legitimacy" (p. 30).

Over half of a century has passed since the issuance of the Truman Commission Report, during which time the nation developed a network of two-year institutions that spans 49 of the 50 states. Community colleges provide an indispensable opportunity for students by adding to their social well-being and to their economic growth through workforce training and enhanced quality of life. From the turn of this century, community colleges have been built upon a rich heritage and remain a purely American institution (AACC, 1997, p. 4). They are complex organizations of considerable diversity in size, scope, and sources of funds and have achieved their objectives by combining three basic resources: human, physical, and financial (Lorenzo, 1994, p. 187). Cohen and Brawer (1996) noted that "of all the higher education institutions, the community colleges contributed most to opening the system" (p. 28).

Most historians argue that the public community college movement began near the turn of the century with the creation of Joliet Junior College in 1901. AACC (1995) reported that in 1907, the California legislature passed the nation's first enabling law which authorized high schools to offer the first two years of college. Ten years later, California began providing local and state support for these colleges (p. 2). Similarly, other states such as Michigan and Texas began establishing community colleges well before the Great Depression. As the nation experienced several serious economic downturns following World War I and the Great Depression, many community colleges attempted to meet the demands and needs of the public through a curricula that was predominately vocational and technical, often referred to as career education (Cohen & Brawer, 1996, p. 22).

Passage by Congress of the Serviceman's Readjustment Act of 1944 was motivated by a desire to offset labor market imbalances and potentially high unemployment, by awarding the returning veterans access to a postsecondary education. Cohen and Brawer (1996) described the G.I. Bill as "the first large-scale financial-aid package ... [that]... made it possible for people to be reimbursed not only for their tuition but also for their living expenses while attending college" (pp. 26-7). AACC (1995) reported that "between 1944 and 1947, enrollment at community colleges doubled as more than 250,000 new students registered" (p. 3). Three years later, in 1947, the Truman Commission promoted the idea of creating a national master plan that would make higher education accessible to all citizenry. Higher education historian Roger Geiger (1993) commented on the Commission's forecast that "while projecting an expansion of higher education based on doubling enrollment rates of college-age cohorts by 1960, the Commission presumed that this expansion would take place in public institutions" (p. 42).

The noted community college pioneer Raymond J. Young, who assisted with the development of master plans for 55 two-year colleges in the U.S. between 1950 and 1976, wrote in 1996 that "up until the mid-1950s, the development of public two-year colleges had been erratic, haphazard, and largely without plan" (p. 5). The 1960s witnessed the demographic waves of the post World War II "baby boomers," the veterans returning from Korea and Vietnam, and the college deferment policies that led directly to the investment and mass expansion of all two-year and four-year public colleges and universities. The Truman Commission had suggested that both federal and state resources would need to be tapped to construct facilities, enhance programs, and develop faculty. This actually occurred during the 1960s, as universal access beyond high school came to be seen as critical. The late M. M. Chambers wrote in 1976 that:

> access means not only admissions for current secondary school graduates, but also for adults of all ages -- for all adults of all ages -- for all who choose to continue their formal education for longer, shorter, or intermittent periods, full time or part time, in traditional or non-traditional institutions, including open universities and colleges without walls. (p. 44)

The growth of publicly controlled community colleges in America between 1960 and 1998 has been extensive. In the 1997 book, No Neutral Ground: Standing By the Values We Prize in Higher Education, Robert Young stated that "the community college is America's bellwether of access and success" (p. 179). Clotfelter (1991) expressed that community colleges were worthy of special attention and "have been hailed as 'democracy's colleges,' . . . because the option of transferring to a four-year degree program following successful completion of the associate degree allows those of modest means to have an affordable option for attaining a college degree" (p. 33). Smith (1995) reported that at the end of nine decades the community college "movement includes nearly 1,500 institutions that serve more than 11.5 million students: 6.5 million seeking an academic credential and about 5 million more in all other academic activities such as continuing education" (p. 27). Community colleges are located in nearly every state and range in size from a couple of hundred students to over 50,000 students. The AACC (1997) reported that in the academic year 1994-95, publicly-controlled community colleges enrolled nearly 52 percent of all undergraduates in the United States, with an average enrollment of about 3,500 credit students (pp. 20-1). Lackey and Rowls (1989) remarked a key to the success of American higher education has been the ability of the system to open colleges in places of greatest need (p. 46). Pederson (1996) wrote that "any challenge to the policy of the open door, or to programs based on open door, may be denounced as elitist, directly threatening America's continued development as a progressive and democratic nation through the agency of the community college" (p. 85).

Honeyman and Bruhn (1996) commented that "higher education is also a complex operation funded by a delicate balance of revenue sources. These sources are diverse and differ in each state" (p. 1). A 1993 review of government appropriations by McPherson, Schapiro, and Winston concluded that reduced funding levels have affected tuition and expenditures (1993b, p. 31). The U.S. Department of Education's National Center for Education Statistics (NCES) reported in fiscal year 1995 that current fund revenue for publicly controlled two-year and four-year colleges and universities totaled $119 billion, nearly 2 times the amount of revenue recorded just 14 years before, in fiscal 1981 (1997, p. 341). While total revenues increased, state support declined. NCES (1997) reported that in fiscal year 1981, public tax-supported revenue for higher education equaled 50 percent of all revenues; this figure slipped to 38 percent in fiscal year 1995 (p. 341). Revenues generated by tuition and fees (18.4%), gifts and grants (17%), and sales and services (23.1%) together constituted the majority of total funds received (NCES, 1997, p. 341). Based on this author's calculation, in terms of constant 1995 dollars, the slippage in state tax-based support between fiscal years 1981 and 1995 for publicly controlled two-year and four-year colleges and universities equated to slightly over $22 billion. Mortenson (1997, November) found that "the FY1998 level of state tax funding for higher education was 68 percent of the FY1979 support level" (p. 5). This slippage in state tax support has been characterized by many commentators as a fiscal crisis. Specifically, Cohen and Brawer (1994) stated, "the state legislatures are the center of concern as the community colleges compete for funds with all other state-supported agencies" (p. 18).

By the mid-1990s, the focus of state legislators, state coordinating bodies, institutional governing boards, and higher education administrative leaders was to slow the pace of postsecondary expenditures while preserving quality and access and not compromising institutional leadership and autonomy. The challenge has been difficult. The nightly television network news reports along with many popular news magazines such as Newsweek, U.S. News and World Report, and Time feature articles spotlighting increased college tuition and its effect on students and their families. Despite its achievement, in developing a mass system of higher education over the past fifty years by advancing access at publicly controlled two-year and four-year institutions, the industry continues to be criticized for its bureaucratic and inefficient operations not praised for contributions in improving economic and social outcomes.

In reality, the past fifty years have seen tremendous growth in higher education through joint efforts of federal, state, and local governments. Nevertheless, the financial problem higher education seems to have incurred is that as it got bigger, it failed to balance changes in its operations and practices to changes in the marketplace. This forgetfulness is not the sign of a mature industry as Arthur Levine and others would believe and allege that higher education is overextended (1997, p. A48), but rather one still seeking ways to grow and serve or accommodate the ever increasing demand for its services.[3]

As Bowen wrote in 1974, "the upper limit on the number of persons who may participate in higher education is, by and large, set simply by the number of persons over 18 in the population" (1974a, p. 149). He argued, "the purpose of education is to develop the intellectual and moral powers of persons, promote good citizenship, enrich the culture, and help people achieve the satisfaction of learning and knowing" (p. 157). In 1998 Cook reaffirmed Bowen's belief by stating, "apart from its direct impact on the economy, higher education is important because it enriches the lives of the citizenry" (p. 5). In addition to These benefits, as Katsinas and Lacey noted in 1989, the nation's economic development and continued well-being is really tied to producing a highly trained and skilled workforce. Here, in fulfilling this role, higher education has yet to mature and is more essential than ever before, as America shifts toward an electronic information age that places an ever-increasing premium on the learning how to learn new skills and technologies obtained at institutions of postsecondary education.

In the 1980s and 1990s, community college enrollments continued to experience solid growth. Cohen and Brawer (1996) stated that "the various curricular functions noted in each state's legislation usually included academic transfer preparation, vocational-technical education, continuing education, remedial education, and community service" (p. 21). AACC (1995) reported that during this period, "the mission of community colleges became sharper and more complex. It more firmly embraced access and equity issues, community activism, and encouragement of life-long learning" (p. 4). Cohen and Brawer (1996) commented that "the trend in community college curriculum was decidedly towards career and developmental education in the 1970s; the 1980s and 1990s saw a cessation of that trend, and succeeding decades may see it swing back toward preparing the general education person" (p. 351).

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[3] Arthur Levine, President of Teacher's College, Columbia University, who feels strongly that higher education has matured. In an op-ed piece published on January 31, 1997, in The Chronicle of Higher Education, he illustrated his reasoning by citing the government's attitude toward other mature industries.

Today, depending upon students' needs, community colleges are capable of effectively offering and delivering adult education, career education, terminal education, continuing education, and community-based education. The modern publicly controlled community college has emerged as a truly *multi-purpose* institution, as visionaries such as Leonard V. Koos (1925) and W. C. Eells (1931) had hoped with their writing in the 1920s and early 1930s. Pedersen in 1997 wrote that as a group, the proponents of community colleges' purposes "extol its success as democratizer of access and as the principal means by which higher education has been brought within the reach of virtually all Americans" (p. 501). With the stage now set, attention is turned to an examination of economic development and the federal and state initiatives that have taken place and their effect on community colleges.

Economic Development, Community Colleges and Rural Development

In the review of literature, below, economic development will be summarized as it relates to federal and state initiatives and community colleges. Economic development is often defined by a community in terms of rising employment, higher wages and benefits, and increasing quality of life for all citizenry within the defined service area. For this reason, Katsinas and Lacey (1989) argued for an expansive vision of economic development, recognizing that it often is community development, given the interrelated nature of education, health facilities, cultural facilities, and recreational facilities

Rodriguez and Ruppert (1997) argued that the State Higher Education Executive Officers (SHEEO) to should help define the leadership role that postsecondary education should play in workforce development in the states. They noted "it can serve as a conceptual framework and 'reminder' that workforce-related issues must be addressed as part of policy deliberations on issues of postsecondary education access, cost, and quality" (p. 363). The importance of higher education and job creation was also underscored by Mortenson in his September 1998 article, Employment Change Among Industrial Sectors Based on Educational Attainment, in which he wrote "those economies that are creating jobs at the fastest rates have the highest shares of college educated workers." Mortenson remarked that there was a strong correlation between higher education and economic development as measured by job creation. More specifically, he noted that between 1980 and 1996, the largest job growth in the world was in the United States followed by distant second place Japan, as America's employment has increased by 27.6 percent, from 99,303,000 jobs to 126,708,000. Based on this measure of job growth, Mortenson related that differences between countries' employment growth was due to the composite or proportion of employment in various industry sectors and the percent of those employees having college degrees. He concluded, "throughout the industrial world jobs are being created - economic growth is occurring - in industrial sectors most dependent on college-educated workers" (pp. 15-6).

In attempting to understand the productivity paradox, researchers have found that the interaction between labor and capital leaves more than 50 percent of the reason for economic growth unexplained. Studies showing deep concern about the relationship between human capital and labor markets have indicated that human "know how" is most often neglected yet the most influential factor in sustaining economic growth. The evidence has shown an apparent discontinuous relationship and unyielding trend between capital and labor toward human capital stock. The widespread movement of these three components over time has reflected capital remaining stable, labor diminishing, and human capital - knowledge base - advancing as the dominating factor in supporting economic growth (S. T. Jutila, personal communication, January 22, 1999). This notion is also supported by Becker (1993) who stated, "in modern economies, the human capital sector relies on skilled and trained labor more than the consumption sector does" (p. 337). He illustrated his point by explaining that the high technology sector has highly educated employees, while many service and goods industries rely on unskilled labor (p. 337). Simply put, advances in productivity and technology and the connection with human capital offer higher education an opportunity for a prosperous future.

In addition, Layzell and Lyddon (1996) stated, "the primary ways that higher education has become involved in economic development efforts have been in the forms of research activities, work force education and training, and business partnerships with higher education" (p. 322). For example, the Family Support Act of 1988 created the Job Opportunities and Basic Skills Training (JOBS) program under Titles IV-A and IV-F of the Social Security Act, which encouraged, assisted, and required applicants for and recipients of Aid to Families and Dependent Children (AFDC) to fulfill their responsibilities to support their children by preparing for, accepting, and retaining employment. Other programs include the Job Training Partnership Act (JTPA) created in 1982, and programs sponsored through the Carl D. Perkins Vocational and Applied Technology Education Act, and services offered to businesses and industry to improve the productivity of the local workforce. Marshall and Glover (1996) mentioned that in the new global information economy under conditions of free trade and high movability of capital and technology, the quality of a nation's human resources becomes a key factor in determining the strength of its economy (p. 36). In fact, individuals affected by the new welfare reform act, known as the Personal Responsibility and Work Opportunity Reconciliation Act of 1996 (P. L. 104-193), will depend upon education and training in order to enter or to return to the workforce.

A 1997 review of state economic policy by the National Conference of State Legislatures' Task Force cited several favorable and valuable outcomes derived from using economic incentives to aid economically distressed urban and rural communities. The apparent benefits included: (1) encouraging job creation and keeping firms from moving, (2) allowing historically underdeveloped states to catch up with other states, (3) leveling competitive differences among the states, (4) benefitting business nationally by promoting states to make tax and regulatory policies more uniform, and (5) reducing the tax burden on business (p. 2). To optimize these benefits, states have been encouraged to strategize programs and policies and concentrate their resources and efforts on tailoring economic incentives and evaluating current circumstances such as tax policies and levels of educational attainment (p. 3). The 1998 Economic Report of the President pointed out that "perhaps the most important change in the labor market over the past 25 years has been the increase in the demand for more educated workers" (p. 149). The apparent message for policy-makers and other community stakeholders is to ensure the understanding of their communities in terms of needs, capacities, and strengths. There has been a relatively recent wave of research from commentators including Boone (1997), Katsinas (1994b, 1996), Katsinas and Lacey (1989, in press), Katsinas and Miller (1998), and Palmer (1996) who have noted the participation of community colleges in workforce development and training and the powerful link to communities' economic development.

Researchers have long understood the value of having a college present as a community resource. Chambers (1963) wrote "a respectable and flourishing college is a very important economic and cultural asset to any local community. It tends to produce educated manpower for the local industries and professions as well as the state and the nation" (p. 23). Breneman and Nelson (1981) stated, "concerted efforts at economic development that include vocational programs at community colleges can provide benefits for both the local community and specific employers" (p. 51). In 1991, Millard commented that America's college campuses were repositories of our cultural heritage and a source of the nation's future intellectual and economic growth (p. 68). Dozier (1996) commented that "in economic development there is a broadening of the focus from traditional student to entire workforce" and some segment of the workforce will require education, development, and training (p. 17). The responsibility of meeting community needs, Eaton (1994a) explained, "takes many forms in the community college." She further commented that "in general, community colleges look beyond their traditional credit and degree programs in order to meet community needs . . . including educational and training needs of local business and industry" (p. 41). Moreover, Vaughan and Eisenberg (1997) stated that "America's community colleges are the ideal organizations. . . . for these colleges function daily at that point where higher education and the larger community intersect" (p. 33). Gianini (1997) characterized economic development for community colleges as having an intellectual scope that reaches beyond skills-and-drills job preparation. He went on to state that "current economic development includes a commitment to community enhancement through the provision of comprehensive educational programs for present and future employees" (p. 14).

It is fairly clear that rural communities face many challenges and their economic development has long been of interest to federal and state policy-makers. The December/January 1986-87 issue of the Community, Technical, and Junior College Journal contains several essays written by community college presidents regarding the challenges facing rural community colleges which can be summarized as follows: (1) economic conditions have become extremely competitive; (2) few understood and appreciate the importance of community colleges as local human resource development centers; (3) greater diversity in student population including displaced workers and nontraditional and part-time students; (4) the economic life of any industry hangs on its ability to keep pace with managerial and technological changes, which requires training and retraining of the workforce; (5) rural community colleges have to make the transition from being suppliers of a locally trained and educated labor force to that of assuming leadership in economic development; (6) economic development deals with the efforts of the local community to recruit new industry to provide new jobs and increase the tax base; and (7) identify those structures that influence and direct the economic growth and development in the college's service area (Bryden, Conrad, Lidstrom, Sharples, Weiss, and Young, pp. 26-8). A common theme in each of these essays was the involvement of rural community colleges in local economic development. In a related article, Katsinas (1994a) commented that the role of community colleges in economic development has been a topic of long-standing debate and explored three very practical functions community colleges may have in community economic development programs, namely: technology transfer; employment, training, and literacy programs; and economic impact studies (pp. 67-8).

In their 1989 American Association of Community Colleges monograph, Economic Development and Community Colleges: Models of Institutional Effectiveness, Katsinas and Lacey made a distinction between *traditional* and *nontraditional* economic development initiatives used by community colleges. The traditional initiatives centered upon jobs supporting a largely manufacturing-based economy that existed prior to the end of the Vietnam War, and reflected in the vocational and occupational curriculums at community colleges. They described eight models of nontraditional economic development initiatives. The models included: (1) serving as a community resource by providing human resource development and training; (2) serving as a community resource for economic development planning; (3) serving as a community resource to collect, analyze, and distribute information on local social, cultural, and economic trends; (4) serving as promoters of entrepreneurship within the traditional postsecondary vocational/occupational curriculum; (5) serving to pool community resources to assist in the incubation and success of new and existing small businesses; (6) serving as a community resource to assist with industrial retention through the promotion of pooled information regarding new industrial processes and technologies; (7) serving as a helping agent with any organization or agency whose basic goals–the promotion of the quality of life through enhanced participation in economic, social, and cultural affairs–are shared; and (8) serving as helping agents willing to innovate and take risks to stimulate community growth and economic development as catalytic agents (pp. 13-25). Katsinas (1994a) also elaborated that nontraditional economic development initiatives revolved around occupations targeted more toward the information age. Some self-reported examples of community colleges' efforts included office automation centers, technology transfer centers, small business incubation centers, and customized employment training programs (pp. 69-70).

Boone cast an expansive role of community colleges in economic development. In his 1997 book, Community Leadership through Community-Based Programming he argued "those community colleges that have experienced the greatest success in community-based programming, leaders have acquired a substantial knowledge base about their service-area communities and the dynamics of the social, economic, political, and technological factors encompassed within those communities" (p. 198). Dozier (1996) explained that economic development initiatives required community colleges to create an effective delivery mechanism for their core competencies to get to their local communities (pp. 15-6). Palmer (1996) observed that community colleges' leaders have also used economic development projects as a way to enhance their institution's image and utility (p. 199). While the economic and societal importance of postsecondary education continues to rise in its meaning for families and individuals, it remains a curious phenomenon that at a time when higher education has never been more important, state investment and, to some degree, local investment has remained flat or declined. The consequence has been to cost shift an ever-larger portion of financing college onto the backs of students and families.

The Rural Community College Initiative (RCCI) noted that America has over 600 rural community colleges and one in four is located in economically distressed areas from Appalachia to the Mississippi Delta, from the Texas-Mexican border to northern New Mexico and the Indian reservations of the West (1996, p. i). In 1998, Rubin and Autry indicated there were three uniquely challenging roles that rural community colleges face. First is rural community colleges are small - a rule of thumb has been colleges need 1,000 students to generate enough credit hours to cover their administrative and overhead costs and remain financially viable. Second is the rural service area tends to be large making the cost per student to be high. Third is rural community colleges have a big mission since they are rooted in and important to their community's future (p. 2). Finally, Rubin and Autry (1998) also mentioned two essential reasons for ensuring the existence and viability of rural community colleges. First, rural communities need access to education and, second, rural community colleges can be catalysts for economic development (pp. 2-3).

Wallus (1996) commented that states' workforce development programs have been influenced considerably by block grants serving several federal job skill initiatives such as School-To-Work Opportunities Act, Carl D. Perkins Vocation Education and Applied Technology Act, Job Training Partnership Act, and the Adult Education Act (p. 25). The apparent dilemmas states have had to face have been designing and coordinating programs that address differences in local priorities, economies, education, industries, and job market demands. This formidable challenge has left states attempting to balance what Wallus described as "achieving effective coordination between training and education providers and employment and economic interest" (p. 29).

Rubin and Autry (1998) delineated policy options and funding mechanisms for states wanting to utilize community colleges as vehicles for rural economic development. The first policy recommendation was for state policy-makers to strengthen rural community colleges by having funding formulas take into account their small size and high cost per student and need for greater economies of scale. The objectives included ensuring community colleges: (1) remained financial viability, (2) offered important high-cost programs, (3) used telecommunications affordably and effectively, and (4) encouraged regional collaboration. Their second policy option was to use rural community colleges as catalysts for economic development. Here, the objectives included: (1) supporting workforce training in rural communities, (2) using rural colleges as agents for technology transfer and small business development, and (3) nurturing leadership for rural development (pp. 3-6).

In the 1998 report, Community Development: A Survey of CDFI Organizations' Use of Performance Measurements, the GAO reported the results of a survey involving the goals of economic development by noting the ever-increasing popularity of economic development of communities through listing the top development goals and percentage of acceptance. They were: create new jobs (66%), create new businesses (60%), retain/expand existing businesses (60%), revitalize local economy (57%), expand self-employment opportunities (55%), retain existing jobs (53%), create wealth for individuals and communities (51%), promote sustainable businesses (50%), increase average wage (25%), and improve benefits/wages of existing jobs (15%) (p. 16). The result of this survey supports the notion that economic development and workforce planning are inextricably linked, and although it is not directly clear from the survey, the works of Katsinas and Lacey (1989) and Rubin and Autry (1998) have demonstrated that community colleges straddle these two areas, and have the potential to make an enormous contribution and be catalysts for economic development in local communities.

Edmund L. Gleazer, who for 21 years served as President of the American Association of Community and Junior Colleges (1962-1981), prophesied closer ties between community colleges and economic development in his 1980 book, The Community College: Values, Vision and Vitality. He pointed out that "a primary function of community colleges is to aid those in the community who want to learn how to secure certain basic necessities. Among those are: housing, health, employment, food and citizenship rights and responsibilities" (p. 20). RCCI (1996) stressed economic development can create jobs, raise income, and generate capital and reinvest that capital in the region's businesses, institutions, and people and that community colleges were uniquely positioned to enhance a region's economic and education opportunities. In particular, RCCI (1996) indicated community colleges often provided the missing link between economic growth and access to education by dealing with low levels of educational attainment and high poverty - two familiar barriers to a region's economy development (p. 2). As a means for diversifying and adding resilience and stability to regional economies, RCCI (1996) outlined several potential roles for community colleges in economic development, namely: (1) providing regional leadership for economic development, (2) being the center of a regional workforce development system attuned to employers' changing needs, (3) promoting technology transfer and competitiveness, (4) encouraging entrepreneurship and small business development, (5) developing programs that target poor people while creating jobs, and (6) advancing a strong education ethic (pp. 4-5).

Bosworth (1997) also turned attention to the challenges facing community colleges and the changing U.S. economy dominated by service industries rather than manufacturing. He stated that:

> too many community colleges are trapped within outmoded and failed systems of workforce development that seek to relegate them to the passive role of education and training suppliers when what is needed are proactive catalysts for helping employers get more competitive, change resource policies, and better meet their workforce needs. (p.10)

In a related article, Rubin and Autry (1998) remarked that "rural colleges are often the only institutions in their communities with the stature, stability, resources and flexibility to provide leadership for economic development." Rural community colleges can be empowered by their ability to access, process, and use collaboratively information to solve local problems they argued (p. 3). These critical needs provide the incentive for rural communities to develop new strategies that would allow their community colleges to pursue these challenges and function as the agents for business development and job creation.

RCCI (1996) observed that community colleges are simultaneously active on both the supply and demand side of the labor market. For example, community colleges are working to create jobs while at the same time training people to fill those jobs. The flexibility of these institutions provides them the opportunity to build important relationships within the community and the region. In fact, RCCI described community college's role in economic development as "institutions simultaneously responsible for both *place-based* economic development and *people-based* education and training strategies" (p. 1) and, in the end, be "powerful catalysts as well as bridges" (p. 3).

The importance of postsecondary education in workforce preparation was featured through authors and events during earlier parts of the century such as Koos in 1925 and the 1947 President's Commission on Higher Education. This notion was also supported by Bowen who in 1973 stated:

> a nation's system of higher education can be managed according to two basic principles: the manpower principle, where the objective is to produce the right number of persons for various vocations and professions and the free-choice principle, where the objective is to supply education and response to the choices of students. (p. 109)

A critically important work in the history of community colleges, Building

Communities: A Vision for a New Century, the 1988 report by the Commission on the Future of the Community College, concluded that workforce preparation was an essential mission of schooling (p. 16). The Commission also recommended ways for rural colleges to improve the curricula by combining technical and general education studies to insure greater and closer relevance to the demands of business and society (p. 19). This recommendation would potentially create economies of scale between high-cost and low-cost curricula and help solve, subsidize, or offset partially the struggle rural colleges may have with tight budgets. For example, some possible alternative ways of lowering operating costs and enhancing economic opportunities would be to transmit courses using telecommunication or encouraging collaboration arrangements between neighboring campuses through joint programs, which has great bearing on rural community colleges' ability to deliver comprehensive, broad-based curricula.

In addition, the Commission on the Future of Community Colleges (1988) reported also that there was a growing mismatch between poorly or narrowly skilled workers and present and future work place requirements (p. 38). To illustrate, the Ohio Skills Gap Initiative recently reported that only 7 percent of the high school seniors were prepared for learning and performing most skilled entry-level jobs ("Ohioans," 1998, December 26, p. 3). The rules and conditions of today's competitive marketplace demand a more sophisticated workforce in order to achieve and maintain the high levels of performance and productivity needed. The knowledge and improved skills required by today's workforce narrow the gap between working and learning and diversify a region's economic base to provide opportunities for its people and viable economy.

Bosworth (1997) recognized the importance of education and training and making a difference in people's standard of living and stated, "the education bias is huge and the economic consequence of poor skills is cruel" (p. 11). A 1996 GAO report, Job Training: Small Business Participation in Selected Training Programs, found problems within the existing U.S. job training structure and, suggested that "the training being provided to current and future workers may not be sufficient to ensure a workforce with the skills necessary for fostering economic growth and improved living standards" (p. 3). The GAO report cited the Department of Labor's Bureau of Apprenticeship and Training (BAT) Apprenticeship 2000 initiative, which identified the lack of skills in current and future workers as a serious problem. Finally, the GAO report acknowledged that The Commission on the Skills of the America Workforce of the National Center on Education and the Economy had recommended the nation move toward a more comprehensive system of education in which skills upgrading for most workers should be a central aim of public policy (p. 3).

The typical rural employer is small, employing less than 250 workers. The Commission on the Future of Community Colleges (1988) commented that many two-year colleges have established relationships with employers to make human resource development possible and serves as the long-term key to economic growth. Put a different way, collaborations with employers for workforce training and economic development of the community have made it possible for citizens to cope with a rapidly changing technological world of work and employers survive in an increasing competitive environment (p. 38). Becker (1993) acknowledged that education and training were helpful in coping with changing technologies and advancing productivity in the manufacturing and service sectors (p. 25). According to the 1996 GAO report, "small employers have special training needs because of the workers they tend to employ" (p. 4). Often rural employers are bound geographically and limited in their ability to pay a high wage compared to their urban and suburban counterparts. For these reasons, rural employers have limited access to a wider labor market and often end up hiring workers with fewer skills and less education.

Unfortunately, barriers may block economic development and stall growth in rural areas. In 1988, Reich noted four additional barriers that may hamper a rural community's economic development as inadequate transportation, communications, technology extension, and worker training and retraining (pp. 5-7). Other examples were revealed by the 1996 GAO report concerning job training programs and small business participation which identified several barriers and categorized them as economic, institutional, and informational. First, economic barriers related to the cost to participate, loss of productivity during the training period, and the loss when newly trained employee leave. Second, institutional barriers are those operations within the organization that discourage or disqualify participation. Third, informational barriers occur when employers are unable to identify training needs or acquire knowledge about available training programs (p. 6). Not surprisingly, some barriers may be more difficult to address or deal with than others.

There appears to be growing support at the national level as reflected in the 1998 Economic Report of the President, which discussed the importance of removing barriers to education and training programs and to the economic environment they serve "as a means of preventing poverty and ensuring opportunity for all" (p. 23). The force continued in President Clinton's 1999 State of the Union: Meeting the Challenges of the 21st Century, speech as evidenced in his message that:

> America has created the longest peacetime economic expansion in our history with nearly 18 million new jobs, wages rising at more than twice the rate of inflation, the highest home ownership in history, the smallest welfare rolls in 30 years, and the lowest peacetime unemployment since 1957. For the first time in three decades, the budget is balanced. From a deficit of $290 million in 1992, we had a surplus of $70 billion last year. (p. 1)

A significant portion of the President's speech was devoted to favoring investments in people, communities, and technology. A brief review of the Background on President Clinton's Agenda for the Nation: State of the Union Address, showed the President's plan included re-employment initiatives and reviving the 1995 proposal for a G.I. Bill for America's workers that would reform employment and training of individuals, a 10 percent tax credit for employers who provide workplace education programs, new market investment initiatives supported by $15 billion in new capital for inner cities and distressed rural areas, additional grants for newly identified EZs, and new funding for expanding the Community Development Financial Institutions Fund into distressed communities (1999, pp. 10-1). Additionally, the report Clinton-Gore livability agenda: Building livable communities for the 21st century requested additional funding for collaboration between neighboring communities - cities, suburbs, and rurals - to foster regional "smart growth"

strategies through local partnerships (pp. 1-2).

It is apparent that both the overall stability and composition of a regional economy are determinates of educational access. Likewise, the intervention of education of a region's population affects its economic potential. Both points are increasingly more true in areas where labor markets are demanding higher skill levels and the local workforce is unable to supply the needed skills. Unless access to education and accompanying training programs are improved, a region's economy will decline or be limited and likely experience high rates of out-migration and unemployment.

For the sake of equity, since community colleges perform multiple tasks in response to their evolving and expanding missions and goals, does the capacity exist to provide both access and economic development given the fractured and limited resources? Can rural community colleges succeed in light of heighten mandates of state policy-makers to demonstrate effectiveness and concrete measures? It is curious that as the economy enters its 94th month of prosperity - marking the longest ever postwar period of economic growth and the lowest unemployment rate of 4.3 percent in 41 years that federal, state, and local investments in higher education would continue to shrink. This seems on its face irrational. Implicit in this criticism is that while economic prosperity benefits all citizens, prosperity also depends upon a flexible mix of activities that are dependent upon a variety of historical, political, and marketplace actions and non-economic activities that include interest and commitment in improving resources for equity, learning, and restoring competencies and skills available for business, labor, and government. Clearly, economic development is directly tied to educational attainment and labor force productivity, and the nation's economy has proven to be highly flexible in its ability to adapt to different mixes of skills such as manufacturing, service, and technology (Rosenfeld, 1992). Despite these reasons, both two-year and four-year publicly controlled colleges and universities continue to undergo fiscal pressures, more costs have shifted to students and parents, and needy students have had their resources decline as the federal and state shares for higher education have decreased (Katsinas, 1994b). Accordingly, a degree of balance or general equilibrium for financing higher education is needed; especially for rural community colleges that serve underdeveloped regions that may not have sufficient institutional capacity or financial base to adequately support their community's needs.

Federal Initiatives in Economic Development

The federal government has long been a partner in economic development with U.S. higher education. Appropriations date from the passage of the Northwest Ordinance of 1787, to the Morrill Acts of 1862 and 1890, to the Hatch Act of 1887, to the G.I. Bill of 1944, to the National Defense Education Act of 1958, to the Higher Education Amendments of 1965 (commonly referred to as the nation's bedrock for higher education policy) to the Basic Opportunity Grants program (Pell grants) provided by the Education Amendments of 1972, to loans for needy students provided by the Middle Income Student Assistance Act of 1978. In the 1950s and 1960s, Cook (1998) wrote that "the Cold War era, and the threat from the Soviet Union led lawmakers to funnel vast sums into support for American higher education" through the G.I. Bill and the Higher Education Act of 1965 (p. 26).

The federal government has aimed initiatives at economic development that have produced innovative solutions and opportunities for lifting rural areas out of a deep depression, poverty, and/or high unemployment. For example, Table 1 provides a profile of economic and educational factors for the Appalachian Region, which is regarded as one of the largest poverty stricken areas in the United States covering 13 states and over 400 counties. Two direct efforts used by the federal government to improve the living standards in Appalachia included the Tennessee Valley Authority (TVA) and the Appalachian Resource Commission (ARC). Both were seen as vehicles to foster economic development to the Appalachian Region. Today TVA runs some of the largest and most efficiently run energy plants in the world. In 1965, President Lyndon Johnson, with his Great Society legislation, authorized the Appalachian Regional Development Act. ARC initiatives involve three complementary activities for development: physical, human, and business. The efforts of TVA and ARC illustrate how federal initiatives joined by states' offices of economic opportunity have created self-sustaining economic development programs and critically improved the quality of life for people of Appalachia.

In addition, the federal government has been a long-time partner and stakeholder in economic development through community reinvestment programs were originally enacted during the 1970s to serve low- and moderate-income areas and programs supporting occupational entry skills such as Manpower Development Act of 1963 and Comprehensive Employment Training Act of 1973. A more recent commitment for community development by the federal government was passage of the Omnibus Budget

Table 1
Income Rates in Appalachia, 1995

State	Percentage Rural	Per Capital Income	Percentage of U.S. Average
Alabama	39.6%	$19,921	85.9%
Georgia	36.8%	$20,433	88.1%
Kentucky	48.2%	$14,361	61.9%
Maryland	18.6%	$18,208	78.5%
Mississippi	52.9%	$15,773	68.0%
New York	15.7%	$18,855	81.3%
North Carolina	49.6%	$20,605	88.8%
Ohio	25.9%	$16,811	72.5%
Pennsylvania	31.1%	$21,082	90.9%
South Carolina	45.4%	$20,269	87.4%
Tennessee	39.1%	$19,215	82.8%
Virginia	30.6%	$16,473	71.0%
West Virginia	63.9%	$17,733	76.4%
United States	24.8%	$23,196	100.0%
Appalachia	NA	$19,318	83.3%

Notes: (1) Appalachian Regional Commission, accessed February 10, 1999, http://www.arc.gov/data/income/incmain.htm, p. 1.
(2) U.S. Bureau of the Census, Statistical Abstract of the United States, 1998, Table 46: Urban and Rural Population, 1960 to 1990, and by State, 1990, p. 46.

Reconciliation Act of 1993, which established the Empowerment Zone and Enterprise Community (EZ/EC) program. The United States General Accounting Office (GAO) in its testimony Community development: The federal empowerment zone and enterprise community program before the Subcommittee on Oversight, Committee on Ways and Means, and House of Representatives commented that "this 10-year program is one of the most recent federal efforts to help our nation face the challenge of revitalizing its deteriorating urban and rural communities" (1998, p. 1). The principle for this piece of legislation resides in taking poverty stricken communities and generating economic opportunity for residents and establishing sustainable community development through participation among community-based partners (p. 5).

The EZ/EC program provides federal grants to economically distressed urban and rural communities placing efforts on revitalization and community redevelopment through a range of economic and social development activities and services and offering tax incentives and regulatory relief to attract new and/or retain current businesses. In a related report, Community Development: Information Related to H.R. 3865, the American Community Renewal Act of 1998, the GAO commented that the American Community Renewal Act was designed to promote incentives to increase jobs, form and expand small business, and increase educational opportunities and home ownership in economically distressed areas (1998, p. 1).

Relating federal initiatives to community colleges, in 1996 Cohen and Brawer wrote that "the 1947 President's Commission on Higher Education articulated the value of a populace with free access to two years of study more than secondary schools could provide" (p. 13). The Commission made several recommendations that directly affected the development of community colleges in this country: (1) the door to higher education be swung open, (2) increase in the number of community colleges, and (3) expand occupational programs for preparing a skilled workforce (pp. 31, 220). Cohen (1994) commented that the network that developed of community colleges has made postsecondary education available within commuting distance (p. 101). Put another way, the Commission's report was not meant to be questioned by political analyst or Washington policy-makers, but rather, the report was designed for responsive action, which is what took place.

Many experts believe that federal and state policy interest in community colleges is due to the continued strong enrollments. These strong enrollments have been predicted well into the next century, because of: (1) the anticipated increasing demand for workforce training and postsecondary education, and (2) Tidal Wave II or "baby boom echo" and immigration, the anticipated large growth in the size of high school graduating classes between the years 1998 and 2007. Since community colleges place a high value on open access, it seems appropriate that they benefit the citizenry and community by contributing to its process for economic development.

In 1994, Eaton added that "community colleges remain the single most important resource for economic gain through education" (1994b, p. 7). The economic payoff for possessing workforce skills, as reflected in the wider spread in earnings between high school graduate and college graduates, also has provided impetus. The extension of educational resource would be used for both student and non-student related course work. Using calculations from the National Bureau of Labor Statistics, the Committee for Education Funding (1997) revealed that "60 percent of all jobs created between 1992 and

2005 will require education beyond high school" (p. 5). The report added:

> college graduates earn, on average, 50 percent more than those with a high school diploma only. College education also has a direct relationship with job security, family savings, and personal health. Federal student aid stimulates the economy, expands the tax base, increases productivity, and helps address the nation's long-term structural debt by assuring future workers have the skills and knowledge to sustain America's economic growth. (p. 68)

Mortenson (1997, December) asked what are the education requirements for the 50.6 million job openings that will occur between 1996 and 2006, and total employment growing from 132.4 million to 150.9 million or 18.6 million new jobs? He estimated that all job openings will require at least some training and the "roughly 20 million new openings will require some form of formal postsecondary education or training" (p. 14). Equally important was the point made by the 1996 Economic Report of the President that indicated:

> by 1993 the difference in wages had nearly doubled, to 89 percent. To the extent that this rise in the payoff to education reflects an increase in the value of skill, improving our schools and expanding access to postsecondary training stimulate economic growth. (p. 191)

Recognizing that education is often viewed by many as the most powerful predictor of economic status, the Committee for Education Funding (1997) indicated that there was strong bipartisan interest on part of the 105th Congress and the Clinton

Administration to provide federal education programs the resources they needed to be effective (p. 6). By way of illustration, the report pointed out that "after approving rescissions and cuts totaling more than $1 billion for FY1995 and FY1996, the 104th Congress ended by appropriating a $3.5 billion increase for education in FY1997" (p. 6). Additionally, further comment included that "the President and congressional leaders have announced plans to work in a bipartisan manner to formulate a plan to balance the budget by 2002 and set priorities for federal initiatives, including education" (p. 7). Most notable was the recognition that budget requests at frozen or near current service levels were no longer sufficient for moving ahead those programs supporting education. In reality, these negotiations presented an opportunity for bold action and significant new investments in education, a requirement to responding positively to the American people's concern for improving education, reducing the nation's debt burden, and meeting the economic challenges of the next century (p. 7).

As a note of special interest, President Clinton established the eight national education goals by signing into law, the Goals 2000: Educate America Act in 1994.[4] This law was an effort to support the concerned with participation, literacy, and graduation rates in elementary and secondary education. Cohen and Brawer (1996) observed that Goals 2000 activities centered directly on national and state-by-state assessment, and the issuance of periodic report cards based on data collected uniformly across the nation (p. 418). Moreover, in 1997, the Committee for Education Funding noted that within the U.S. Department of Education, six major programs out of a total of 197 accounted for almost 80 percent of the department's budget. Accordingly, higher education programs such as TRIO, Federal Supplemental Education Opportunity Grants, Pell Grants, Perkins Loans and Title III Institutional Aid are critical to making success in postsecondary education possible for thousands of students (pp. 6-7).

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[4] Goals 2000: The Educate America Act, Public Law 103-227, was signed into law on March 31, 1994.

Robert B. Reich, the Secretary of Labor for the first Clinton Administration, noted in 1993 that federal spending on public investments had been declining as a percentage of GNP. For example, he stated that "infrastructure spending dropped from 1.14 percent of GNP in 1980 to 0.75 percent in 1990. Spending on education dropped from 0.51 percent to 0.37 percent" (p. 399). The 1997 U.S. Department of Education report, Federal Support for Education: Fiscal Years 1980 to 1997, showed that on-budget federal program support for postsecondary education totaled $15.4 billion or 21 percent of federal education funds in fiscal year 1997. Federal support for research conducted at universities and university-administered research and development centers totaled $15.9 billion or 22 percent of the on-budget funds. The report also indicated that among federal agencies, the U.S. Department of Education was the primary provider of education funds at all program levels for postsecondary education spending $11.7 billion, or 76 percent of total spending, with the exception of research, where the Department of Health and Human Services provides $7.1 billion, or 45 percent of the total. Additionally, federal support for postsecondary education extends beyond the amounts included in the U.S. budget. Some $27.4 billion in off-budget support and nonfederal funds that are generated by federal legislation but do not appear as budget authority of or outlays of the U.S. Budget, assisted postsecondary institutions and students in fiscal year 1997 (pp. 9-13).

The Education Budget Alert for Fiscal Year 1998, described the matter as being two-fold. First, federal resources have provided access to a postsecondary education to students who ordinarily would not have such an opportunity. This commitment has been realized through such funding mechanisms and programs as federal grants, loans, and work-study assistance, which have been chiefly responsible for providing access to a postsecondary education to financially needy students. For example, the Committee for Education Funding (1997) reported that "more than one-half of the 14 million Americans attending college today do so with federal assistance, and the federal government provides 75 percent of all student aid" (p. 67) and "all federal grants and loans are almost one-third of schools' support" (p. 69). Waldman (1995) reported that the "loan volume increased from $1.3 billion in 1970 to $15.9 billion in 1993" (p. 53). The second realization has been the need to assure Americans are prepared to meet the challenges of the future by widening and deepening opportunities (p. 67).

With education increasing in national concern, the Clinton Administration in the 1996 Economic Report of the President discussed the need for a "G.I. Bill for Workers," which would replace the existing worker training system with a flexible voucher that workers could use at community colleges or other training facilities (p. 4). The President's 1998 State of the Union Address also commented upon the need for a "G.I. Bill for Workers" and asked for "a simple skills grant so people can, on their own, move quickly to new jobs, to higher incomes and brighter futures" (p. 4).

Despite consequences of a beleaguered tax structure providing indirect support to higher education, Ernest L. Boyer, in his 1984 speech to the Association for the

Advancement of International Education stated, "no one claims that federal legislation is the only answer. Still, there are responsible federal steps that can and must be taken to achieve equity and excellence and to serve as a signal for state and local leadership" (1997, p. 38). In 1997, the Economic Report of the President noted that "the sources of economic growth can be grouped under three headings: increases in physical capital, improvements in human capital, and increases in the overall efficiency of the economy-the amount of output per unit of input" (p. 29). President Clinton in his 1998 Economic Report of the President, stated:

> that is why the historic balanced budget agreement I signed into law in 1997 included the largest increase in aid to education in 30 years, and the biggest increase to help people go to college since the G.I. Bill was passed 50 years ago. (p. 4)

Parsons (1997) commented that the federal interest in higher education can be simply interpreted in three way, namely: (1) a series of discrete historical events, (2) past events become the building blocks and shapers of future events, and (3) policy actors become interrelated and mutually shape one another (pp. 65-6). Additionally, proposed federal initiatives and convincing program lines along with existing policies of direct and indirect support identify education as playing a major, if not the key role in the economic development of communities, and should be made available to serve as the foundation for success. The Commission for Education Funding (1997) noted that recent federal budget efforts have clearly promoted and recognized innovation and new connections and resources by "charting a successful course toward a more dynamic, competitive, and information-based economy in the 21st Century will depend heavily on educating a nation that can respond to new challenges and opportunities" (p. 5). The next section traces the development of the states' initiatives toward community colleges and rural development policy.

State Initiatives in Economic Development

Congress promoted statewide planning in higher education through the Higher Education Facilities Act of 1963, by requiring states participating in federal programs to designate a state agency responsible for coordinating plans with the federal government. Similar provisions found their way into the landmark Higher Education Act of 1965, as the federal government began playing a key role in national higher education policy-making (Carnegie Foundation, 1993, p. 36). In 1996 Epper and Russell cited that the government provided the states further incentive to establish a comprehensive planning structure for postsecondary education "through the '1202 Commissions,' established in Section 1202 of the 1972 amendments to the Higher Education Act" (p. 3). In total, the federal government's involvement included such areas as "research, student aid, state coordination, and so forth, through its executive, legislative, and judicial branches" (Hines & Goodchild, 1997, p. xxiv).

State initiatives toward economic development offer as many opportunities as it does challenges. States extend their conditions and plenary functions on higher education policies using three levers. First are the ground rules, which include enabling laws and local levies that cover portions of operating and capital activities. Hines and Goodchild

(1997) observed that the current practice is that local governments provide funding for community colleges in approximately half the states, which encourages local governments and civic leaders to take a greater interest in higher education (p. xxv). Second is the budget process which accommodates funding requests, appropriations, and allocations. The Carnegie Foundation for the Advancement of Teaching reported states contributed $490 million in 1950 and $17.6 billion in 1980 annually to the operating incomes of public colleges and universities (1982, p. 35). Mortenson (1997, November) noted that fiscal year 1998 state tax fund appropriations for all 50 states totaled $49.4 billion in support of public higher education (p. 5). Their third point was that regulatory powers have been delegated to state agencies, commonly referred to as coordinating boards. Interestingly, Hines (1997) concluded that while state higher education agencies were in a key position to provide and to facilitate leadership for higher education in the states, there was no single best way to organize a state structure for higher education (p. 403).

In their book Forty-Nine State Systems of Community Colleges, Terrence A. Tollefson and Ben E. Fountain discuss states' enabling laws for community colleges. Extending the use of this data, Table 2 illustrates the unpublished research by Stephen G. Katsinas that links community colleges and statewide laws passed to promote geographical access and economic development. Additionally, Table 3 shows a further application of Katsinas's unpublished work that directly links the three broad missions of state community colleges which are labeled access, traditional (educational), and economic development. Katsinas and Lacey (personal communication, March 1, 1999) argued that economic development was a key motivating factor for state legislatures to establish

Table 2
Year Community College Statewide Law Passed, with emphasis on Access and Economic Development

State	Year Statewide Law Passed	Law passed to promote... Geographic Access	Economic Development	
Alabama	1963	X	X	
Alaska	1954	X	X	
Arizona	1960	X	X	
Arkansas	1973	X	X	
California	1921, 1960	X	X	
Colorado	1967	X	X	
Connecticut	1965	X	X	
Delaware	1966	X	X	
Florida	1968	X	X	
Georgia	1931	X		
Hawaii	1964	X	X	
Idaho	1939	X	X	
Illinois	1965	X	X	
Indiana	1963	X	X	
Iowa	1927, 1965	X	X	
Kansas		X		
Kentucky	1962	X	X	
Louisiana		X	X	
Maine	1986	X	X	
Maryland	1968	X	X	
Massachusetts	1958	X	X	
Minnesota	1964, 1991	X	X	
Mississippi	1922, 1964	X	X	
Missouri	1927, 1974	X		
Montana	1940	X	X	
Nebraska	1926	X	X	
Nevada	1969	X	X	
New Hampshire	1945, 1983	X	X	
New Jersey	1966	X	X	
New Mexico		X	X	NA (est)
New York	1948	X	X	
North Carolina	1957, 1979	X	X	
Ohio	1961, 1963	X	X	
Oklahoma	1941	X		
Oregon	1949, 1961	X	X	
Pennsylvania	1963	X	X	
Rhode Island	1960	X	X	
South Carolina	1961	X	X	
Texas	1929, 1965, 1985	X	X	
Utah	1969	X	X	
Vermont	1968	X	X	
Virginia	1967	X	X	
Washington	1945, 1967	X	X	
West Virginia	1961	X	X	
Wisconsin	1911, 1965	X	X	
Wyoming	1945, 1961	X	X	

Source: Unpublished analysis by Stephen G. Katsinas of data collected by Terrence A. Tollefson and Ben E. Fountain (1992), Forty-Nine State Systems of Community Colleges, 2nd ed., Washington DC, American Association of Community and Junior Colleges.

Table 3
Missions of State Community College Systems

	Access Missions			Traditional Missions			Economic Development-Related Missions			
State	Open Door	Financial Access	Geographic Access	Transfer	General Education	Technical Education	Industry Training	Developmental Education	Community Services	Continuing Education
AL	X	X	X	X	X	X	X	X	X	
AK	X	X	X	X	X	X	X	X	X	
AZ	X		X	X	X	X	X	X	X	
AR	X		X	X	X	X	X	X	X	X
CA	X	X	X	X	X	X	X	X	X	
CO	X	X	X	X	X	X	X	X	X	X
CT	X	X	X	X	X	X	X	X	X	
DE	X		X	X	X	X	X	X	X	X
FL	X	X	X	X	X	X	X	X	X	X
GA	X		X	X	X	X	X			
HI	X		X	X	X	X	X	X	X	X
ID	X		X	X	X	X	X	X	X	X
IL	X	X	X	X	X	X	X	X	X	X
IN	X		X			X	X	X		
IA	X		X	X	X	X	X	X	X	X
KS	X		X	X	X	X	X	X	X	X
KY	X		X	X	X	X	X	X	X	X
LA										
ME	X		X			X	X	X		
MD	X	X	X	X	X	X	X	X	X	X
MA	X	X	X	X	X	X	X	X	X	X
MN	X	X	X	X	X	X	X	X	X	X
MS	X	X	X	X	X	X	X	X	X	X
MO	X	X	X	X	X	X	X	X	X	X
MT		X								
NE	X	X	X	X	X	X	X	X	X	X

Table 3 (continued)
Missions of State Community College Systems

	Access Missions			Traditional Missions			Economic Development-Related Missions			
State	Open Door	Financial Access	Geographic Access	Transfer	General Education	Technical Education	Industry Training	Developmental Education	Community Services	Continuing Education
NV	X	X	X	X	X	X	X	X	X	X
NH	X	X	X	X	X	X	X	X	X	
NJ	X		X	X	X	X	X	X	X	X
NM	X	X	X	X	X	X	X	X	X	X
NY	X	X	X	X	X	X	X	X	X	X
NC	X	X	X	X	X	X	X	X	X	X
OH	X		X	X	X	X	X	X	X	X
OK	X	X	X	X	X		X	X	X	
OR	X	X	X	X	X	X	X	X	X	X
PA	X		X	X	X	X	X	X	X	X
RI	X	X	X	X	X	X	X	X	X	X
SC	X	X	X	X	X	X	X	X	X	
TX	X	X	X	X	X	X	X	X	X	X
UT	X	X	X	X	X	X	X	X	X	X
VT	X	X	X	X	X	X	X	X	X	X
VA	X	X	X	X	X	X	X	X	X	X
WA	X	X	X	X	X	X	X	X	X	X
WV	X	X	X	X	X	X	X	X	X	X
WI	X	X	X	X	X	X	X	X	X	X
WY	X	X	X	X	X	X	X	X	X	X
Total	44	31	44	42	42	43	44	43	41	33
Percent	96%	67%	96%	91%	91%	93%	96%	93%	89%	72%

Source: Unpublished analysis by Stephen G. Katsinas of data collected by Terrence A. Tollefson and Ben E. Fountain (1992), Forty-Nine State Systems of Community Colleges, 2nd ed., Washington DC, American Association of Community and Junior Colleges.

community colleges. Katsinas further argued that in many states workforce training and technological education programs were established before the general education transfer functions were put into place and cites North and South Carolina were examples of this; states that grew their community college systems from postsecondary trade schools, like Wisconsin and Alabama prior to WWII were also examples of this; finally Ohio with its technical colleges was an example of this.

A modern day look at evidence indicating the relationship between higher education and communities' economic development is that over the years both federal and state policy-makers have undertaken policies designed to create initiatives and incentives to support economic development and expand economic growth using two-year colleges. Hines (1988) suggested the relationship between state governments and higher education was a form of partnership or joint venture where both entities had separate goals and operating procedures but sought ways to work together to achieve mutually desirable ends (p. 103). He observed that governors' renewed interest in higher education has resulted in increased attention in a number of states to connect education and economic development (p. 106). Gilly and Fulmer (as cited in Hines, 1997) confirmed the importance of higher education as a policy issue in their 1986 national study involving the responses from 32 governors. They found 47 percent of the governors placed higher education at the top of their agendas (p. 391). Newman (1985) also noted that "governors and legislators are recognizing the fact that a strong educational presence is of tremendous benefit to a state's prestige, economy, and quality of life" (p. 13).

The importance of economic development to communities and states and the involvement of state lawmakers and governors in the process confirmed Kerr's comment that in many states the governor had become the single most important person in higher education (1985, p. 46). A prime example of one governor's interest in higher education is Missouri's Governor Mel Carnahan and the state's annual Governor's Conference on Higher Education where attendees include legislators, trustees, presidents, and other practitioners. In fact, Governor Carnahan's concern for the connection between human capital and economic development was shown by his interest and questioning what was the overall return on state investment resulting from the contact of people with a specific component or components of Missouri's human resource investments program. To find out the answer, Carnahan asked four basic questions: (1) How many people get a job who did not have a job before? (2) How many people move from below the poverty line to above the poverty line? (3) How many people stay in a job for 3, 6, 9, 12, and 24 months? and (4) How many currently employed people receive training in programs that help them get a higher wage? (John R. Wittstruck, personal communication, February 19, 1998).

In addition, forming partnerships between lawmakers, business leaders and community colleges for job training, technology transfer, and economic development thus provides an opportunity for generating more revenue from larger tax bases. Millard (1991) noted that states like Ohio and Oklahoma have encouraged competition for campuses to align themselves accordingly with their missions by setting aside a portion of the higher education budget for performance funding through incentive and challenge grants (pp. 74-7). He further acknowledged that a number of states have encouraged higher education and industry research interaction by committing state funds for their support. His case in point was Ohio's Edison Technology Centers, where academic researchers are given the opportunity to participate and work on various industry problems or engage in entrepreneurial activities that support community efforts for economic development (p. 242).

Economic development was important, if not key, in establishing community college systems in most states and, therefore, the economic development workforce training function of the community college has a long history. Access was a motivating factor which was brought on by the G.I. Bill of 1944, the President's Commission on Higher Education of 1947, and served the needs of the baby boom generation. Therefore, access and economic development have always been a close part of the missions of community colleges. While some may disagree whether community colleges are the appropriate channel for servings all of these needs such as Palmer (1996, p. 202), fearing incoherence and/or inconsistencies rather than efficiencies as argued by Katsinas (1994b), community colleges *are* performing these services, and the history can not be denied. The next section fine tunes the points of view made so far by discussing the relationship between state investment and tuition policy.

Declining State Investment and the Shift from Low Tuition Policy

Public college and university tuition rates are greatly influenced by state policies and the level of state budget support. Typically, for public community colleges, state support is the largest single revenue category. The purpose of this section is to show how declining state support has produced a cost shift and generated higher tuition charges, as states move from a public or social benefit toward a more private or individual perspective. Whether or not rural community colleges, institutions that often serve economic depressed rural regions of the U.S. - can make up state shortfalls through increased tuition assessments is at best problematic.

The nation's economy in January of 1999 completed its 93rd straight month of growth - the longest peacetime expansion in U.S. history - including a budget balanced by a tidal wave of tax revenues - with record breaking productivity, growth, and falling prices (Glassman, 1999, January 3, p. B5). Higher education depends upon the health of the economy but many troublesome matters remain, including: (1) politicians at the federal level turning over responsibilities and resources to the states, (2) states' lawmakers demanding accountability for public expenditures, and (3) voters calling for tax cuts. Lorenzo (1994) suggested that these kinds of shifts in attitudes and policies have guided how the costs of higher education will be shared in the future (p. 202). Zumeta (1998) added that "strong budget growth no longer assures gains in support for higher education because of increased competition with other major state functions for funding" (p. 70). Consequently, states' policies and procedures have affected higher education and as a result, there are many differences among and between the states on tuition policy.

In the Fall of 1996, there were nearly 14.4 million full and part-time students enrolled in public and private two-year and four-year colleges and universities in the United States. Of that, 11.1 million, or 78 percent, of the students were enrolled in two-year and four-year publicly controlled colleges and universities. The percentage split of total enrollment between two-year and four-year public institutions was almost even, at 48 percent and 52 percent, respectively ("Enrollment," 1998, August 28, p. A10). Cohen and Brawer (1994) reported that "in some states, as many as 80 percent of the people starting postsecondary studies do so in a community college" (pp. 5-6). The major sources of financial support for two-year and four-year public institutions have been from state and local appropriations (tax dollars) and tuition and fees borne by students and their families. Other sources include workforce development grants and contracts, auxiliary services, and private gifts and endowment income.

Over the past twenty years, both the federal and state governments have opted to divest a significant portion of their investment in higher education. Nationally, the decline in appropriations of state tax funds for public higher education per $1,000 of personal income has been a long-term phenomenon beginning with fiscal year 1978-79 (Mortenson, 1997, November, p. 5). Mortenson found that in that year, a peak of $11.22 of state tax funds for public higher education per $1,000 of personal income was reached, while the average amount of $7.65 in fiscal year 1997-98 represented the lowest reported investment for any year since the end of the Cold War. Moreover, from fiscal year 1978-79 to fiscal year 1996-97, the U.S. average appropriation of state tax funds per $1,000 of personal income fell by $3.57 or 31 percent (p. 4). Every one of the 50 states provided a smaller share of state personal income for higher education in fiscal year 1997-98 than for fiscal year 1978-79. In fact, in fiscal year 1997-98, 21 states reported reaching their lowest level of state tax support for higher education, 11 states reached their second worst funding levels for higher education, and 6 states appeared to have bottomed-out and experienced a modest recovery (p. 5). In contrast, The Wall Street Journal reported a study by the Center for the Study of the States, a unit of the Nelson A. Rockefeller Institute of Government at SUNY Albany, indicating that despite continued fears of an economic slowdown, most state revenue departments were enjoying solid increases in tax collections (December 9, 1998, p A1).

In Mortenson's November, 1998 Postsecondary Education OPPORTUNITY newsletter, he noted that for fiscal year 1999 total state tax funds for higher education increased from $46.6 billion in fiscal year 1997 to $49.5 billion in fiscal year 1998 to $52.8 billion in fiscal year 1999. His interpretation of the trend was "these increases are very modest, representing little or no real increase in state investment in higher education." Mortenson's argument was that personal income had grown along with the economy -- in fact faster than state tax fund appropriations for higher education -- therefore, "states have been allocating a declining share of their resources to higher education investment." He conceded that state resources continue accommodating other public services such as Medicaid, corrections, and more recently, reductions in state taxes (p. 1).

Mortenson (1998, November) argued that the states have been underfunded higher education in recent years, comparing the decline in state appropriations of 13.2 percent between fiscal years 1979 and 1990 to the decline of nearly 20 percent between fiscal years 1990 and 1999 (p. 7). Zumeta (1998) reflected that during periods of prosperity, higher education in the past usually recovered ground lost in recessions, but there has been no catch-up in the latest favorable economic cycle (p. 71). In recognizing this fiscal pressure Zumeta responded, "here's the conundrum: Higher education is growing in social and economic importance in an era of long-term stagnation in its public support" (p. 65).

While states' lawmakers have become more dependent upon the growing importance of higher education as a means for stimulating economic growth and workforce development, states continue to lessen their direct investment and weaken their supportive roles in providing postsecondary education to their citizens. This has direct bearing upon rural community colleges, who are asked to be involved with both access and economic development.

Some argue that the public's disillusionment with government practices and erosion of confidence or attitudinal fallout in government effectiveness can be traced back to events such as Vietnam and Watergate, which caused state governments to suffer from a "trickle down" effect. Damaging criticism of colleges and universities were the contentions that escalating tuition charges reflected higher education's greed and the public's return on its investment (Cook, 1998, p. 35). Clearly the tuition hikes of the 1970s and 1980s outpaced the growth of incomes. Jones (1987) argued that for the most part, states had less spending power due to a generally less productive national economy, and that revenue streams lagged behind inflation. States also oppose less progressive income tax structures, Jones argued. If public higher education is to receive adequate state funding in a time of limited resources and increasing demands and accountability, Jones argued that institutions need to direct their attention and efforts toward increasing state revenues and addressing the need for coordinated economic development programs (p. 110).

State financial support for public higher education is funneled to the institutions through five different methods: (1) operating and capital subsidies, (2) student aid programs, (3) capital expenditures, (4) special project/programs, and (5) and tax exemptions. Obviously, operating budgets of public institutions of higher education are highly sensitive to increases and decreases in state funding since the primary source of public higher education funding is its operating subsidy from the state. Unfortunately, as Mortenson had pointed out in February 1998, state resources since 1980 for higher education have been losing out to other competing demands for resources across the nation. He predicted that publicly controlled colleges and universities could expect continued stiff competition for state funds from Medicaid and prisons (p. 16), a point echoed by Katsinas (1994a). It is by no means clear whether the funding demands of competing social programs or new tax cuts will taper off. As a result, the threat of funding cuts may hamper the introduction of new academic programs, student access, and quality indicators.

It is true that higher education has not been without critics while undergoing amazing growth in student enrollments and revenues per student. Mortenson's report on the slippage of state support for higher education indicates hesitancy among policy-makers about the next steps for the future. In 1980 Bowen revealed, and it continues to hold true today, that "most public institutions operate their education programs almost exclusively with funds derived from tuition and from state appropriations based on formulas in which enrollment was the dominant factor" (1980b, p. 138). Zumeta (1998) wrote that "the level of tuition reflects the ability of higher education to secure state support, and thus indirectly the economic and fiscal health of the states" (p. 65). This author believes that the slippage in state support will likely handicap the widened opportunity and more equitable access to higher education along with the growth of institutional capacities, particularly community colleges and their ability to be flexible and comprehensive institutions in terms of program and curricular development as well as further involvement in their community's economic and workforce development.

These predictions are consistent with sentiments offered by Cohen and Brawer (1996), who predicted that curricula at community colleges in coming years would remain classified as career, developmental, community, and collegiate studies with career education being a top priority. They argued that research efforts should therefore center upon assessing students and institutional outcomes (p. 435). All in all, states' financial plans for institutions and students must allow for room and growth. Smith (1995) pointed out some key areas community colleges should consider for the 21st century: (1) a more broadly educated society; (2) a more competent and more adaptable workforce; (3) a more involved and better informed citizenry; and (4) a broader, more comprehensive system of lifelong learning (p. 65).

An equally disturbing issue for all colleges and universities has been their inability to control the financial dimensions of rising costs, which continues to receive a great deal of public attention. All colleges and universities have incurred significant educational and non-educational costs in producing and delivering their services. NCES (1997) reported that current fund expenditures for publicly controlled two-year and four-year institutions totaled $115.5 billion in fiscal year 1995 compared to $42 billion in fiscal year 1981, an increase of 185 percent. During that same fiscal period, educational and general expenditures grew from $34.2 billion to over $92 billion or 169 percent, and have remained roughly constant at about 80 percent of total expenditures (p. 356). The growth of expenditures and the anti-spending political climate have placed a higher responsibility on the industry for ensuring that resources used are identified and measured. More importantly, another way of looking at the data reveals that after adjusting for inflation, current fund expenditures per student in constant 1995 dollars for both publicly and privately controlled two-year institutions totaled slightly over $6,000 in fiscal year 1981, compared to roughly $6,900 in fiscal year 1995, a difference of $900 or 15 percent over 15 years (p. 354). For this reason, in 1977, Bowen had warned, "the problem in considering efficiency in higher education is that neither the costs nor the outcomes can be measured precisely in dollars" (p. 20).

Due to the abovementioned decline in state tax appropriations for public higher education operating budgets, institutions and state policy-makers have turned to high tuition in order to offset withdrawn state investments. From fiscal year 1980 to fiscal year 1997, the average four-year public college tuition and fees per student (excluding room and board) increased from $738 to $2,986, or 305 percent. Likewise, from fiscal year 1980 to fiscal year 1997, the national average of two-year public college tuition and fees per student (excluding room and board) rose from $355 to $1,283, or 261 percent (NCES, 1997, pp. 326-7). Hauptman and Merisotis (1997) offered five categories of explanations for the rapid increase in tuition: (1) colleges face increasing prices for what they purchase, (2) colleges are using tuition increases to finance expanded or improved services, (3) the share of revenue from sources other than tuition is contracting, (4) increased availability of student aid has led colleges to raise their student charges, and (5) competitive pressures have convinced many colleges to increase tuitions (pp. 270-1). Zumeta (1998) more directly concluded that "reduced governmental support has led to a steady, sharp increase in the student's share of higher education costs from 35.3 percent in 1979 to 47.8 percent in 1994" (pp. 74-5) Nationally, while the rise in tuition and fees at both two-year and four-year public institutions has far exceeded the rate of inflation, the increases in tuition and fees have been slightly slower in two-year colleges compared to four-year institutions.

State and local appropriations or investment in public higher education climbed from $20.5 billion in academic year 1980-81 to $43.7 billion in academic year 1994-95, an increase of 113 percent, well below the percentage increases in tuition and fees (NCES, 1997, p. 341). This compared to a 73.7 percent increase in inflation over the same period. Mortenson (1997, March) observed that tuition and fee charges remain the most visible price of higher education to students and their families (p. 19). It is important to note, however, that for many students and parents, the amount of tuition actually paid to attend college has little resemblance to the amount of tuition charged by the school. The College Board (1997) reported that "loans now comprise almost 60 percent of all aid, compared to just over 40 percent in 1980-81" (p. 4). In essence, the spread or difference between the tuition charge and the amount paid occurs because many students receive some form of student financial aid, which provides a wider understanding of affordability and access.

In addition, Mortenson (1998, June) commented that "public institutions have been aggressively raising tuition and fee charges to students to offset this loss of state funding" (p. 14). Clearly higher education funding decisions are matters of choice made by the states' lawmakers. And Mortenson (1997, November) noted that "the states have consciously chosen to reduce state funding for higher education" (p. 7). This declining investment in higher education clearly conflicts with lending support to meet societal needs.

During roughly the same period of 1980 to 1996, the nation's personal income per capita rose to $24,231 from $10,029, or 142 percent, only about half as fast as tuition and fees at community colleges (U.S. Bureau of the Census, 1997, p. 457). Calculated that as a percentage of personal income per capita, tuition and fees at public two-year colleges rose from 3.5 percent in 1980 to roughly 5.3 percent (author's estimate). While the U.S. average annual tuition and fees charged to attend public community colleges is just under $1,500, given the flat funding of Pell grants for needy students over the past decade, the public policy community concerned with higher education at the state level is challenged to adequately fund access, not to mention economic development opportunities.

A strong higher education delivery system has a significant and positive socio-economic impact on a state. Zumeta (1998) reported that the National Governors' Association and National Association of State Budget Officers projected fiscal year 1998 would be the fourth consecutive year of aggregate state tax reductions, which is expected to accumulate to nearly $16 billion (p. 68). Contributing to higher education's budget quandary during the 1990s, state lawmakers have had to deal with difficult policy choices as to how to invest limited taxpayer dollars, as other priorities including Medicaid, corrections, and obligations to elementary and secondary education have tended to "crowd out" funding for public higher education.

The recession of 1990-91 exacerbated this crowding out effect, and put even greater pressure on boards to raise tuition. For example, Ohio's investment in higher education has always ranked below par. Historically, Chambers (1963) reported that in fiscal year 1951-52, Ohio ranked 44th in its effort to support higher education and ranked lowest among the highly industrialized states with high per capita incomes (pp. 104-5). The Ohio Board of Regents reported in 1995 that since the mid-1950's, per capita personal income in Ohio declined by 16 percent relative to the national average. In current dollars this equates to a loss of about $2,500 per person, or a total loss in excess of $27.5 billion per year (p. 3). It is obvious that state support is critical. Here, Ohio's lack of comparable state support has led to a less favorable economic effect on its public higher education system. Moreover, Halstead (1996) reported that in fiscal year 1995-96, Ohio's public university tuition ranked 9th and community college tuition ranked 11th among the 50 states. At an average just under $2,200, Ohio's public community college tuition was about 50 percent above the $1,500 national average (pp. 24-5). Limited state investment challenges the capacity of all of Ohio's two-year colleges to play their full role in providing access and economic development.

Public and private higher education has become a costly investment for American families, and the sharp rise in tuition at public institutions has become a sensitive issue for educators and lawmakers. High tuition also has a negative effect on students, parents, and the American taxpayer at both the federal and state levels. For example, NCES (1996) reported that public and private higher education is a costly investment for American families that finding "the national index of public effort to fund higher education was 36.1

in 1966 compared to 21.9 in 1993, one of the lowest levels since 1930" (p. 160). Halstead (1996) argued the real investment in public higher education has remained essentially fixed during the last decade at about $6,750 per FTE student in constant 1995 dollars. The decline in public support has been perfectly matched by increases in tuition with no improvement in overall funding (p. 4). He added that on average the family payment effort - tuition relative to median income of households - for public higher education has moved upward 5.5 percent in fiscal year 1981-82 to 8.9 percent in fiscal year 1994-95, a 62 percent increase (p. 37). The financial reality is the increasing cost to attend two-year or four-year colleges has raised significant concern over the future affordability and opportunity for a college education. Daniel J. Phelan (1997), the President of Southeastern Community College, a rural-based two-year institution in Iowa, has argued that the problems community colleges face are becoming increasingly more critical and widespread. He stated that:

> even as funding decreases, community colleges face considerable and ever-increasing challenges, the most critical of which are rising enrollment, increasing demands for services, accountability, and remediation activities; an unstable economy; increasing availability of technology and related solutions; rising taxpayer resistance; increasing competition outside higher education; and nondiscretionary funding. (p. 31)

On the basis of well-documented past experience, Bowen (1980a) eloquently stated:

> that contribution is different for great universities, state colleges, liberal arts colleges, and community colleges; and within each category, there are

> differences in the specific responsibilities depending on the clienteles being served, including the call for the higher education community and for funding agencies to work together toward improving excellence without impairing access. (pp. 138-9)

Unfortunately, with no objective base line data, distinguishing between community colleges by type - urban, suburban, or rural - state and federal policy-makers find it difficult to get their hands around the issues and concerns facing them. This is particularly bothersome as it relates to the economic development challenge rural Americans face and the higher non-tuition attendance expenses rural Americans face merely to access education opportunities.

The Katsinas and Lacey Classifications

A technical report prepared for the Education Commission of the States (ECS) entitled A Classification of Two-Year Institutions of Postsecondary Education by Katsinas and Lacey (in press), provides three distinct definitions for rural institutions as: (1) small, having enrollments of fewer than 1,000; (2) medium, with enrollments between 1,000 and 2,499; and (3) large, having enrollments of 2,500 students and above (pp. 27-8). They further pointed out that:

> important differences existed by place, size, and governance among and between publicly controlled community, junior, and technical colleges, not to mention the 100 or so not-for-profit privately controlled junior colleges and growing number of proprietary institutions that award associate

degrees. (p. 4)

By way of illustration, Table 4 of the Katsinas and Lacey (in press) technical report to the ECS indicates enrollment at two-year institutions of postsecondary education by type and control in fiscal year 1993. In reviewing Table 4, it becomes apparent and much easier to see that such an analysis was basically impossible to do prior to the development of a classification system for two-year institutions. The present classification scheme for postsecondary institutions was developed by Clark Kerr in 1973, and revised and updated in subsequent editions released by the Carnegie Foundation for the Advancement of Teaching. It groups all public and private two-year colleges into just one category, "Associate of Arts Colleges." According to Katsinas and Lacey (in press), the 1994 Carnegie Classifications showed there were 1,471 publicly and privately controlled Associate of Arts Colleges that served 6.527 million students, or 40.9 percent of the total students enrolled at U.S. institutions of higher education (p. 4). Such lumping implies that large multi-campus, suburban community college districts, such as Cuyahoga Community College (OH), which serves nearly 24,000 students on its three campuses, have the exact same mission and functions as do small, rural community colleges, such as Northwest State Community College (OH) with an enrollment of approximately 2,200. Katsinas and Lacey (in press) argued that "this deficiency–not developing classifications that describe with greater precision institutions that serve over 40 percent of the total enrollment in U.S. higher education–has inhibited overall understanding of the roles and functions of two year institutions" (p. 4). Clearly, while urban, suburban, and rural institutions do perform many of the same functions, they are very different institutions indeed.

Table 4
Enrollment at Two-Year Institutions of Postsecondary Education, by Type and Control: 1993

Type of Institution	Number (Total = 2,421)	Total Enrollment	Average Enrollment
I. Publicly Controlled	**1,052**	**5,507,663**	**5,235**
A. Rural Community Colleges	**725**	**1,773,695**	**2,446**
1. Small Colleges (<1,000)	211	114,150	541
2. Medium Colleges (1,000 - 2,499)	241	426,191	1,768
3. Large Colleges (>= 2,500)	273	1,233,354	4,518
B. Suburban Community Colleges	**209**	**1,917,076**	**9,217**
1. Suburban Single Campus	167	1,196,073	7,162
2. Suburban Multi-campus	42	721,003	17,167
C. Urban Community Colleges	**118**	**1,816,892**	**15,397**
1. Urban Single Campus	61	416,622	6,830
2. Urban Multi-Campus	57	1,400270	24,566
II. Privately Controlled Institutions	**796**	**334,531**	**420**
A. Private, Non-Profit Colleges	107	70,543	659
B. Proprietary Two-Year Colleges	689	263,988	383
III. Federally Chartered and Special Use Institutions	**573**	**132,997**	**232**
A. Tribal Colleges	29	13,391	462
B. Special Use Institutions	544	119,606	220

Source: Stephen G. Katsinas and Vincent A. Lacey, (in press). A Classification of Two-Year Institutions of Postsecondary Education, a technical report of the Education Commission of the States, p. 19.

The lumping effect of the Carnegie classifications has served to submerge a very legitimate discussion regarding the relative fairness and equity of state policies regarding the appropriation and equalization of state funds to promote state objectives across different types of two-year institutions. These objectives include promoting a well-educated citizenry, equality of programmatic opportunity across an entire state, and evaluating high cost high-tech programs in areas of special need. Bowen, of course, would argue that we *should* expect to find diversity in costs even among two-year institutions given the differences in enabling laws, curricular functions, funding sources, and expenditure patterns. Unfortunately, the use of a single classification by the U.S. Department of Education and the Carnegie Foundation to describe over 2,400 public and private community colleges has led to an imprecise understanding of their different needs and activities.

At the foundation of an assessment of the relative fairness and equity of state funding formulas for publicly-controlled community colleges is the development of a base of objective descriptive data regarding revenues and expenditures. This was the primary problem this study addressed, by providing a base of empirical data for three specific types of publicly controlled rural community colleges for the 1992-93 and 1996-97 academic years, identified by Katsinas and Lacey (in press), namely, small-, medium-, and large-sized. The study assessed institutional capacity based upon the institutions' revenues and expenditures as related to their evolving and expanding missions and goals and extension of resources. As noted above, the present classification scheme for postsecondary institutions developed by the Carnegie Foundation limits all community colleges to just one category. Consequently, it is very difficult to provide meaningful research or to analyze empirically the effect of various policies and the costs of higher education with respect to educational and non-educational expenditure patterns and long-term and short-term policy issues. A secondary problem was to assess the classification system devised by Katsinas and Lacey (in press) specifically for rural community colleges and determine if differences exist among and between rural based small-, medium-, and large-sized publicly controlled two-year institutions.

The U.S. Department of Education sponsors the National Center for Education Statistics (NCES), which is the principal entity created by the Congress to collect, analyze, and report on the condition of education in the United States. Broyles (1995) commented that its primary role is pinpointing the nation's educational data priorities and needs and providing follow-up reporting of useful and accurate information in a consistent and reliable manner (p. 2). The audiences involved are federal and state policy-makers and other education decision-makers including practitioners, the higher education research community, policy-makers concerned with rural education and economic development, and community college trustees as well as the general public. Moreover, this study reinforced and amplified an important and basic service provided by NCES -- that of assisting state and local education planning agencies in identifying educational trends and activities.

To fulfill its data collection responsibilities related to higher education, NCES created the Integrated Postsecondary Education Data System (IPEDS). Specifically, IPEDS superseded the Higher Education General Information Survey (HEGIS) which ran from 1965 to 1986, and collected data from only accredited postsecondary institutions. The change instituted in 1986 allowed for collecting data from a more comprehensive range of postsecondary institutions. In addition to the nearly 3,500 previous HEGIS institutions, IPEDS now includes non-accredited institutions, postsecondary occupational education and training centers and proprietary schools and institutions and has expanded the survey universe to over 11,000 postsecondary education providers.

Whereas HEGIS was a set of surveys with unrelated data elements, IPEDS is a comprehensive data collection *system* that provides national, state, and institutional level information about primary providers of postsecondary education. Essentially, it is the core postsecondary education data collection program with integrated data elements. While the federal government collects other data sets, most notably the National Study of Postsecondary Faculty, the National Postsecondary Student Aid Study, the National Household Education Survey, and the National Assessment of Education Progress, IPEDS is the central data file on higher education in the United States. In other words, IPEDS is well equipped to collect data and report on all institutions that provide postsecondary education as their primary purpose, including publicly controlled community colleges.

Summary

As noted above, the literature on rural community colleges is very limited. The lack of a classification system similar to the Carnegie Foundation for the Advancement of Teaching that disaggregates community colleges by geographic type has served to submerge these institutions within the literature of higher education. To say that a Miami-

Dade Community College, with five campuses and four outreach centers and 130,000 headcount students per year has the same missions and functions as a Hazard Community College in the Appalachian mountains of Eastern Kentucky stretches incredulity to a high level. That the American Association of Community Colleges would choose to eliminate their Commission on Rural/Small Community Colleges in 1997 is yet another indication of the relative invisibility of these institutions within state and federal policy-making levels. Fortunately, federal policy-makers within the U.S. Department of Education's Office of the Community College Liaison, the Ford Foundation, and the W. K. Kellogg Foundation have taken up some of the void. That the recent Education Commission of the States' Policy Briefs Series would include one entitled "The Rural Community College" provides evidence that, increasingly, state and federal policy-makers are looking to rural community colleges to provide access and economic development initiatives as never before. In our electronic information age, the rural community college is more essential than ever.

The literature on community college finance is limited and the literature on rural community college finance is extremely limited as noted by general shortcomings in Breneman's and Nelson's (1981) arguments on community college finance when community colleges are taken as a whole group. For this reason, the studies and trends reviewed in this chapter have provided only a general direction about the critical transitions experienced by both two-year and four–year colleges and universities. Honeyman, Williamson, and Wattenbarger (1991) explained that "being between the university and the K-12 public school system makes it difficult to categorize community, junior, and technical colleges separately" (p. 1). Simply put, there are inherent limitations in being able to distinguish among and between the different two-year publicly controlled institutional characteristics such as revenues and expenditures. Specifically, the negative effect of having only one classification for all community colleges weakens the depth of a clear analysis to provide explanations of the reasons for and consequences of success and failure. By lumping community colleges together under one classification, the impression is that differences do not exist and assumes a full sense of compatibility. This lumping phenomenon is particularly damaging to rural community colleges which have, among community colleges nationally, a unique role to play as the only available entity to provide training for new workforce entrants and existing workers in need of skill upgrading, especially for small manufacturing entities (Rosenfeld, 1992, p. 255). Thus, a study assessing the adequacy of institutional capacity for rural community colleges to provide access and economic development is timely, important, and needed.

Perhaps Bowen and Bailey summarized matters best in their speech delivered at the Association of Governing Board's National Conference on Trusteeship in New Orleans, Louisiana on April 30, 1974. They stated:

> Education is not a cure-all for the problems of society, and it will not lead to the perfectability of man on this earth. But it is possible to enhance human powers, to enrich civilization, to provide greater equality of opportunity and human worth, and to raise the level of moral and aesthetic values. . . . We are now in a time of hesitancy about our national goals. We are in a mood of drawing back, of retrenchment, of lack of vision and courage. We talk about saving a few dollars through better management,

> cost analysis, and accountability. These are fine but they are no substitute for vision, daring, and forward motion in the building of a great society. I am confident that the current state of mind is temporary and that America will come to its senses and resume its forward motion through the development of its people. When it does so, higher education will be on the leading frontier. (pp. 19-20)

Chapters Three through Five contain the methodology, analysis, and results from comparing the means of revenue and expenditure categories retrieved from the IPEDS data system for publicly controlled community colleges and more specifically, small-, medium-, and large-sized rural community colleges across fiscal years 1992-93 and 1996-97. More importantly, this study concentrated on measuring and assessing the effects and implications on demands placed on community colleges through the size of their financial base.

CHAPTER THREE

METHODOLOGY

Introduction

The purpose of this study was to assess the relative institutional capacity of rural community colleges to provide access and economic development by determining empirically whether significant differences exist among and between the revenue and expenditure patterns of publicly controlled rural community colleges. These institutions have been classified as either small-, medium-, or large-sized according to their student enrollments by Katsinas and Lacey (in press) This study was to be reflective and descriptive in nature.

The first step in this study was to review the relevant literature which was limited on the subject of rural community colleges generally, and even more limited on the subject of community college finance specifically. This was presented in Chapter Two. This was followed by usage of the Integrated Postsecondary Education Data System (IPEDS) of the U.S. Department of Education to identify and select out the component revenue and expenditure information pertaining to publicly controlled rural community colleges for fiscal year 1992-93, as well as fiscal year 1996-97, adjusted for inflation, and compare for similarities and differences in revenues and expenditures among the universe of publicly controlled community colleges and small-, medium-, large-sized rural community colleges and between fiscal years. Appropriate statistical procedures were utilized to determine whether significant statistical differences existed among and between the revenues and expenditures of the universe of publicly controlled community colleges and the three categories of small-, medium-, large-sized community colleges as defined by student enrollment in each year separately, and in comparing the two fiscal years to one another. The results of this analysis are presented in Chapter Four. Finally, Chapter Five includes the study's findings, conclusions, and recommendations for policy and further study. Arguments for future use of the Katsinas and Lacey (in press) classification system for community colleges will also be made.

The IPEDS Data Base

IPEDS collects data nationally within a well defined taxonomy. In 1995, Broyles commented that the "NCES encourages the use of IPEDS data and data sets in institutional research, at state and regional levels for policy analysis and planning, and by the academic research community" (p. 8). For example, many institutions use IPEDS as the foundation for their institutional research functions, as do 47 of the 50 states.

IPEDS is constructed around a series of related surveys targeted to collect institution-level data on eight particular areas of interest. These surveys and their frequency of collection are included in Table 5. The surveys are collected from both public and private baccalaureate or higher-degree granting institutions, two-year institutions, and less-than-two-year institutions. Depending upon the type of institution, one or more of the eight survey instruments may be used to collect data. Put differently, the IPEDS universe provides most of the basic information needed to describe the size of

Table 5
Modules within IPEDS and Frequency of Data Collection

Module	Frequency of Collection
Institutional characteristics	Annual
Enrollment	Annual
Degree completions	Annual
Salaries, tenure, and fringe benefits of full-time instructional faculty	Annual
Financial statistics	Annual
Academic library	Biennial
Institutional staff	Biennial
Fall enrollment in occupationally specific programs	Biennial

Source: Broyles, S. G., 1995, Integrated Postsecondary Education Data System, U.S. Department of Education, National Center Education Statistics, Washington DC, pp. 3-6.

a postsecondary institution in terms of students enrolled, staff employed, dollars expended and degrees earned. The three IPEDS financial survey forms used to capture information were available at the NCES World Wide Web address[5] and separated by: (1) degree-granting public institutions, (2) degree-granting nonprofit and for-profit institutions, and (3) all non-degree granting institutions.

In addition, NCES has coordinated much of the data collection efforts through state agencies such as state departments of education, state higher education coordinating boards, or state bureaus of employment services. In nearly all of the states -- in fact in 47 of the 50 -- the State Higher Education Executive Office (SHEEO) is the central data collection point for IPEDS data from the institutions prior to submission to U.S. Department of Education. In other words, in 47 of the 50 states, IPEDS plays a key, if not central, role as the foundation of the statewide higher education data collection and assessment efforts. Finally, because of the IPEDS survey universe, other federal agencies rely upon IPEDS data sets, including the U.S. Bureau of the Census, the Office of Management and Budget, the U.S. Bureau of Economic Analysis, the U.S. Bureau of Labor Statistics, and the Federal Mediation Service, as well as the U.S. Office for Civil Rights.

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[5] On September 4, 1998, the NCES Internet address for IPEDS financial survey forms was: http://nces.ed.gov/Ipeds/survey2.html.

Campus policy-makers can use IPEDS-generated data to address significant policy issues across the campus, region, state, and nation for planning purposes and comparative analysis. At the state level, policy-makers can review revenue and cost comparisons among and across states or similar institutions, investigate the balance of resources between state and local support, examine problems surrounding the distribution of state support, and lend support to implementing public policy priorities. And at the federal level, various commissions, including the recent 1997 National Commission on the Cost of Higher Education, have used IPEDS data to monitor compliance with federal legislation or to examine the cost of educational programs.

IPEDS can provide an institution or set of institutions an opportunity to analyze and report trends in enrollment and degree completion by sex and race/ethnicity, patterns of student costs and faculty composition, and types and numbers of institutions. Or, as with this study, IPEDS can provide an empirically-based data set to analyze rural community colleges' pattern of revenues and expenditures. IPEDS provided the opportunity to review categories of revenue and expenditures such as tuition, state and local appropriations, instruction, and public service in a comparative fashion. As this analysis is comparative in nature, it does not reflect institutional priorities and decision making.

The focus of IPEDS information is its reporting capability regarding regional and national trends and related comparisons. This underscores the utility of IPEDS data for institutions as a vehicle to enhance their ability to handle requests for information on educational issues and matters of public concern from higher education researchers, state agencies, education associations, the media, and the general public. Moreover, IPEDS offers offices of institutional research and budget the opportunity to link solidly budgeting to planning at the institutional level, and thus provide a more thorough reporting mechanism at the state level for policy analysis and planning. Analysis of IPEDS data therefore represents a tremendous opportunity for state officials, researchers, and administrators to provide concise information and to inform taxpayers, policy-makers, and educational leaders. This utility has been dramatically increased following the 1992 Higher Education Act, which for the first time required all institutions of postsecondary education to report data elements on all of the eight IPEDS surveys. For this reason, the overwhelming significance is that the financial module of IPEDS is capable of providing reliable information for this study of publicly-controlled rural two-year postsecondary institutions.

Many commentators argue that managing the present requires increased analytical insight and a focus on the future. During the 1990s, the higher education community has been exposed to a much broader economic, social, and political landscape. Schmidtlein (1989-90) commented that "institutions clearly need to consider their future circumstances and directions and the programs and resources required to move in desired directions" (p. 22). Put another way, planning attempts to gain information and insights into the character of future conditions in order to guide current decisions and courses of action. The positive features of IPEDS would counteract any potentially negative effects and certainly identify for rural community colleges their progress toward goals, reduce the uncertainty of past and current trends, illuminate problems, and enhance predictions on future conditions. In particular, empirical analysis of IPEDS may provide baseline objective data that sheds light on what is already known anecdotally by practitioners, and missed to date by economic researchers such as Breneman and Nelson (1981), namely, that higher education's non-tuition expenses do indeed append to the extension and delivery of quality postsecondary services in rural areas of this country.

Definition and Selection

The study compared revenues and expenditures of rural community colleges from fiscal years 1992-93 and 1996-97 using the IPEDS data base. The classification system developed by Katsinas and Lacey (in press) for two-year institutions was used to identify the population of rural community colleges. Revenue and expenditure data for each of the selected institutions was retrieved from the Financial Module of the IPEDS data base and analyzed for differences accordingly.

Each institution's unique federal identification number was cross-referenced against the identification numbers developed by Katsinas and Lacey (in press) for public rural two-year institutions. In cases where a match was obtained, the corresponding institution's revenues and expenditures were captured and placed in a separate file. Upon completing the extracts from IPEDS, the separately created file was sorted by small-medium-, and large-sized institutions and prepared for statistical analysis. According to Katsinas and Lacey, there were 725 institutions that fit the description of rural community colleges in 1993 (in press, p. 19).

Statistical Procedures

The analysis employed appropriate statistical procedures to determine the extent of differences, if any, that were found between the national averages and the specific rural classifications. The resulting data was described in terms of population based upon small-, medium-, and large-sized student enrollments. The revenue and expenditure data for fiscal year 1992-93 was price-level adjusted to 1997 dollars which eliminated the effect of inflation. All revenue and expenditure line items were converted to revenue per FTE and expenditure per FTE. The Multiple Analysis of Variance (ANOVA) Single Factor Technique was applied to assess if significant differences existed among the means of the revenue and expense categories of small, medium, and large rural institutions and the means of the revenues and expenditures for the universe of publicly controlled community colleges. The ANOVA also was utilized to determine the significance of differences found among the revenue and expenditures categories and between the two fiscal periods under examination, 1992-93 and 1996-97.

Finally, the ANOVA statistical technique is the most reliable test for this study since it is capable of testing a hypothesis about several means. It accomplishes this by testing the hypothesis of several populations to determine if they have the same mean by focusing on variances. The test compares and searches out differences among the means by investigating variances and measuring the amount of difference among values to determine variability. A p-value is calculated to provide a basis for accepting or rejecting the hypothesis. For example, the ANOVA technique allows testing the null hypothesis that the state appropriation means of small-, medium-sized, and large-sized rural community colleges are equal against the alternative hypothesis that at least one mean value is different within a specified level of confidence. Testing the hypothesis that the state appropriation means are the same is completed by calculating the p-value approach, which provides the basis for accepting or rejecting the null hypothesis. The statistical decision is to reject the null hypothesis when the calculated p-value is smaller than the predetermined level of confidence. A rejection of the null hypothesis indicates that there is a significant statistical difference among the state appropriation means for small-, medium-, and large-sized rural community colleges.

Analysis of the Sample of IPEDS Data

The financial information was collected through surveys by the U.S. Department of Education from publicly controlled community colleges. The financial data for fiscal years 1992-93 and 1996-97 were available through the IPEDS data base located on the World

Wide Web. Two Modules of the IPEDS modules were used in this study, the Fall Enrollment and Finance Modules, to develop comparable FTE revenue and expenditure data for analysis. This generated a universe on public two-year colleges located throughout all fifty states totaling 1,099 in fiscal 1992-93 and 1,058 in fiscal 1996-97, the two fiscal periods under study. Within the two separate years of data, there were 918 institutions in fiscal year 1992-93, and 892 institutions in fiscal year 1996-97 that were fully represented, or 85 percent of the total publicly controlled two-year institutions. The remaining institutions were excluded from the study because of missing, incorrectly recorded, or unreported data.

It was noted that the September 1998 General Accounting Office report, Higher Education: Tuition Increases and Colleges' Efforts to Contain Costs, found some institutions report financial information under one identification number and enrollment information under several identification numbers (p. 20). For example, a four-year institution with several two-year university centers may end up reporting financial and enrollment information in this manner. Within the remaining universe of data, there were 561 and 569 rural community colleges in fiscal year 1992-93 and fiscal year 1996-97, respectively. This meant that approximately 62 percent of the total universe for each fiscal year under review was determined to be a rural community college according to the Katsinas and Lacey (in press) classification system. Table 6 summarizes the results by fiscal period illustrating the net effect on the universe of publicly controlled community colleges, the number of institutions reporting both financial and enrollment information, and the number of rural institutions classified as small-, medium-, and large-sized along

Table 6
Description of Publicly Controlled Community Colleges that Reported Data in IPEDS Enrollment & Financial Modules, Fiscal Years 1992-93 and 1996-97

Description	1992-93	%	1996-97	%
Universe of All Community Colleges	1,099		1,058	
Enrollment & Financial Data	918	83.5%	892	84.3%
Rural Community Colleges	561	61.1%	569	63.8%
Small	88	15.7%	98	17.2%
Medium	219	39.0%	214	37.6%
Large	254	45.3%	257	45.2%

Notes: (1) the number of publicly controlled community colleges were obtained from the IPEDS data base; (2) the number of colleges having reported both enrollment and financial data in either year used in the study; (3) the number of rural colleges separated into small-, medium-, and large-sized; and (4) all includes urban and suburban community colleges as well as rurals.

with the accompanying percentage of total. It indicates that this study was able to use 83.5 percent in fiscal 1992-93 and 84.3 percent in fiscal year 1996-97 of the publicly controlled community colleges reporting data to IPEDS. Table 7 compares the institutions under the Katsinas and Lacey (in press) classifications and institutions reporting IPEDS enrollment and financial data for fiscal years 1992-93 and 1996-97. Interestingly, the comparison reveals that of the rural community colleges classified by Katsinas and Lacey (in press), this study used 77 percent in fiscal year 1992-93 and 79 percent in fiscal year 1996-97.

The Department of Education uses separate survey forms to collect fall enrollment and financial data. The Department provided this study with the 1992 Fall enrollment of

Table 7
Institutions Under the Katsinas and Lacey Classifications and Institutions Reporting IPEDS Enrollment and Financial Data for Fiscal Years 1992-93 and 1996-97

	Katsinas & Lacey Classification Number	Number of Institutions Reporting IPEDS Data for 1992-93		1996-97	
		Number	% of Katsinas & Lacey Category	Numbers	% of Katsinas & Lacey Category
Rural Community Colleges	725	561	77%	569	79%
Small	211	88	42%	98	46%
Medium	241	219	91%	214	89%
Large	273	254	93%	257	94%
Total, ALL Community Colleges	1,052	1,099		1,058	
Community Colleges reporting both IPEDS Enrollment and Financial Data		918		892	

Notes: The discrepancy between the 1,099 figure reported by IPEDS and the 1,052 figure obtained by Katsinas and Lacey is explained by the fact that IPEDS sums data for a number of multi-campus urban and suburban multi-campus districts as single institutions.

full-time and part-time students and the formula used for calculating full-time equivalent (FTE) at publicly controlled community colleges. The control factor used by the Department to calculate the full-time status of part-time students is 33.5737 percent.[6] The information presented in Table 8 provides an understanding of the differences between

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[6] October 13, 1998, a personal conversation with Mr. Sam Barbett of the U.S. Department of Education regarding the conversion of part-time students to full-time for computing full-time equivalents.

Table 8
Head Count and Full-Time Equivalents Enrollment by Rural Community College Classification of Institutions Analyzed in this Study

	FY 1992-93				FY 1996-97			
	Head Count Number	%	FTE Number	%	Head Count Number	%	FTE Number	%
Small	63,702	4.0%	45,147	4.6%	72,144	4.5%	51,128	5.1%
Medium	385,280	24.3%	251,369	25.4%	401,949	24.8%	259,136	25.7%
Large	1,134,626	71.6%	693,225	70.0%	1,145,174	70.7%	699,619	69.3%

Notes: The Table provides the student enrollment data from IPEDS data base and the computed full-time equivalent numbers form U.S. Department of Education. Table 4 on page 97 cites Katsinas' and Lacey's universe of rural community colleges.

enrollment, or headcount, and FTEs reflected by the community colleges under study. Finally, Table 9 indicates headcount enrollment of rural community colleges under Katsinas and Lacey (in press) classifications to the IPEDS information used by this study. For fiscal years 1992-93 and 1996-97, the headcount enrollment data used by this study equaled 89 percent and 91 percent, respectively, of the headcount enrollment information of the Katsinas and Lacey (in press) classifications.

In addition, both the revenue and expense variables for fiscal years 1992-93 and 1996-97 were reflected as revenues and expenditures per FTE. Using the Department of Education's numbers for 1992 Fall-term and 1996 Fall-term full- and part-time enrollments at each institution, the number of FTEs was calculated by multiplying the number of part-time students by .335737, or roughly one-third, and then adding the converted number of part-time students to the number of full-time students. Often the calculation of FTE students is a contentious subject and may differ by type of institution, region, or report. However, the calculation method selected is consistently used by the

Table 9
Headcount Enrollment of Community Colleges Under Katsinas and Lacey Classification System and IPEDS for Fiscal Years 1992-93 and 1996-97

	Katsinas & Lacey Classification Numbers	Number of Institutions Reporting IPEDS Data for			
		1992-93		1996-97	
		Numbers	% of Katsinas & Lacey Category	Numbers	% of Katsinas & Lacey Category
Rural Community Colleges	1,773,695	1,583,608	89%	1,619,267	91%
Small	114,150	63,702	56%	72,144	63%
Medium	426,191	385,280	90%	401,949	94%
Large	1,233,354	1,134,626	92%	1,145,174	93%
Total, ALL Community Colleges	1,052	1,099		1,058	

Notes: The discrepancy between the 1,099 figure reported by IPEDS and the 1,052 figure obtained by Katsinas and Lacey is explained by the fact that IPEDS sums data for a number of multi-campus urban and suburban multi-campus districts as single institutions.

U.S. Department of Education and other policy-makers and was therefore deemed appropriate for the purposes of this study.

CHAPTER FOUR

ANALYSIS OF RESULTS

Introduction

The purpose of this study was to examine institutional capacity of rural community colleges. This study examines the revenue and expenditure patterns to determine the adequacy of the institutional capacity for publicly controlled rural community colleges using the topology for rural community colleges developed by Katsinas and Lacey (in press). The Katsinas and Lacey (in press) classification system for community colleges was used to ascertain changes in the financial status of publicly controlled rural community colleges using the Department of Education's Integrated Postsecondary Education Data System (IPEDS), which lumps all community colleges into one classification in reports such as Digest of Education Statistics or The Condition of Education. The primary aim was to provide a foundation of objective, quantitative data to assess the institutional capacity, and learn if the financial base of rural community colleges was adequate to provide both access and economic development. The secondary aim was to validate the Katsinas and Lacey classification scheme as it pertains to small-, medium-, and large-sized rural community colleges.

This chapter presents the analysis that resulted from both the literature review and the trials of IPEDS data. The organization of this chapter begins with a descriptive analysis of IPEDS data expressed in numbers and percentages. This is followed by a review of the financial results for fiscal years 1992-93 and 1996-97, and a section that analyzes the ANOVA testing to the financial analysis of institutional capacity. An in-depth analysis of each of the 54 separate ANOVA trials performed on the IPEDS revenue and expenditure categories and accompanying narrative is found in the Appendix. The chapter concludes with a short summary of the ANOVA trials.

Analysis of IPEDS Data, Expressed in Numbers and Percentages

The effect of inflation is often a problem when comparing financial information over several fiscal periods. To eliminate this potential threat, the fiscal year 1992-93 financial data was converted to constant 1997 dollars using the U.S. Department of Labor's Consumer Price Index (CPI) for all urban consumers. The U.S. Bureau of Labor Statistics publishes CPI's for two population groups: (1) a CPI for All Urban Consumers which covers approximately 80 percent of the total population and (2) a CPI for Urban Wage Earners and Clerical Workers which covers 32 percent of the total population. Being conventional, this study used the CPI for All Urban Consumers and that index recorded an 11 percent increase in prices between fiscal years 1992-93 and 1996-97. The CPI compares to a 12.7 percent increase in the Higher Education Price Index (HEPI), which tracks the changes in the costs of items purchased by postsecondary institutions.

Table 10 provides a summary of the revenue per student FTE by category in the current fund for the small-, medium-, and large-sized rural community colleges and the universe of two-year publicly controlled institutions for fiscal years 1992-93 and 1996-97.

The eight revenue categories include (1) state appropriations; (2) local appropriations; (3) federal appropriations; (4) tuition and fees; (5) workforce development - federal grants & contracts, state grants & contracts, local grants & contracts, and private gifts, grants & contracts; (6) endowment income; (7) sales & services of educational activities; and (8) auxiliary enterprise. Table 11 provides a percentage distribution of the major revenue categories for both fiscal years 1992-93 and 1996-97.

Table 12 provides a summary of the expenditures per student FTE by category and size of rural institution along with the universe of postsecondary institutions used in the study for fiscal years 1992-93 and 1996-97. Table 13 provides a percentage distribution of the major expenditure categories for both fiscal years. The fourteen expenditure categories include (1) instruction, (2) research, (3) public service, (4) academic support, (5) student services, (6) institutional support, (7) operation and maintenance, (8) scholarships and fellowships, (9) mandatory transfers, (10) nonmandatory transfers, (11) total educational & general expenditures, (12) auxiliary enterprises, (13) total current fund expenditures & transfers, and (14) education & general compensation.

Review of Financial Results for Fiscal Years 1992-93 and 1996-97

For fiscal year 1992-93, revenues and expenditures were adjusted for inflation and converted to 1997 dollars. State appropriations were the largest source of revenue, ranging from $5,305 or 49.2 percent for small rurals, $3,739 or 43.4 percent for medium rurals, and $2,871 or 37.9 percent for large rurals. The second largest component of revenue per FTE was tuition and fees, which on average ranged from 18 percent at small

Table 10
Comparison of Revenue per FTE of Rural Community Colleges and the Universe of Publicly Controlled Community Colleges for Fiscal Years 1992-93 and 1996-97 (in constant 1997 Dollars)

FY 1992-93	State Approp.	Local Approp.	Federal Approp.	Tuition & Fees	Workforce Development	Private Gifts Grants & Contracts	Endowment Income	Sales & Serv. Educational Activities	Auxiliary Enterprises	Other Sources	Independent Operations	Total Current Fund Revenues
Small	5,305	479	93	1,936	2,127	84	6	137	605	0	0	10,773
Medium	3,739	741	83	1,584	1,681	77	5	45	660	0	0	8,614
Large	2,871	1,013	30	1,518	1,463	63	6	64	544	0	0	7,571
Universe	2,804	1,190	43	1,491	1,219	65	6	45	447	353	11	7,674
Percentage of Total												
Small	49.2%	4.4%	0.9%	18.0%	19.7%	0.8%	0.1%	1.3%	5.6%	0.0%	0.0%	100.0%
Medium	43.4%	8.6%	1.0%	18.4%	19.5%	0.9%	0.1%	0.5%	7.7%	0.0%	0.0%	100.0%
Large	37.9%	13.4%	0.4%	20.0%	19.3%	0.8%	0.1%	0.8%	7.2%	0.0%	0.0%	100.0%
Universe	36.5%	15.5%	0.6%	19.4%	15.9%	0.8%	0.1%	0.6%	5.8%	4.6%	0.1%	100.0%
FY 1996-97												
Small	4,563	436	134	1,846	2,339	128	9	118	608	263	1	10,445
Medium	3,864	754	73	1,766	1,796	118	5	78	657	205	4	9,320
Large	3,147	1,101	18	1,644	1,634	85	7	67	563	233	4	8,502
Universe	2,918	1,270	27	1,713	1,434	83	7	59	458	229	3	8,201
Percentage of Total												
Small	43.7%	4.2%	1.3%	17.7%	22.4%	1.2%	0.1%	1.1%	5.8%	2.5%	0.0%	100.0%
Medium	41.5%	8.1%	0.8%	18.9%	19.3%	1.3%	0.1%	0.8%	7.0%	2.2%	0.0%	100.0%
Large	37.0%	13.0%	0.2%	19.3%	19.2%	1.0%	0.1%	0.8%	6.6%	2.7%	0.1%	100.0%
Universe	35.6%	15.5%	0.3%	20.9%	17.5%	1.0%	0.1%	0.7%	5.6%	2.8%	0.0%	100.0%
Percentage Change Between FY92-93 and FY96-97												
Small	-14.0%	-9.1%	44.1%	-4.6%	10.0%	52.2%	46.5%	-14.2%	0.5%	n/a	n/a	-3.0%
Medium	3.4%	1.8%	-12.1%	11.5%	6.8%	53.5%	12.2%	75.7%	-0.5%	n/a	n/a	8.2%
Large	9.6%	8.8%	-40.5%	8.3%	11.7%	34.8%	19.8%	5.1%	3.4%	n/a	n/a	12.3%
Universe	4.1%	6.7%	-35.8%	14.9%	17.6%	29.2%	8.4%	30.9%	2.5%	-35.3%	-73.5%	6.9%

Table 11
Percentage Distribution of Revenues for Small-, Medium-, and Large-Sized Publicly Controlled Rural Community Colleges, Fiscal Years 1993 and 1997 (in constant 1997 dollars)

	Rural Community Colleges						Community Colleges, ALL	
	Small		Medium		Large			
	FY 93	FY97	FY 93	FY97	FY 93	FY97	FY 93	FY97
State Appropriations	49.2%	43.7%	43.4%	41.5%	37.9%	37.0%	37.4%	35.6%
Local Appropriations	4.4%	4.2%	8.6%	8.1%	13.4%	13.0%	15.9%	15.5%
Federal Appropriations	.9%	1.3%	1.0%	.8%	.4%	.2%	.6%	.3%
Tuition & Fees	18.0%	17.7%	18.4%	18.9%	20.0%	19.3%	19.9%	20.9%
Sub-total	72.5%	66.9%	71.4%	69.3%	71.7%	69.5%	73.8%	72.3%
Workforce development:								
Federal	15.7%	14.6%	15.7%	13.8%	14.9%	13.6%	12.0%	12.1%
State	3.8%	7.6%	3.3%	4.9%	3.8%	5.2%	3.8%	4.8%
Local	0.3%	0.2%	0.5%	0.6%	0.6%	0.5%	0.5%	0.5%
Private	0.8%	1.2%	0.9%	1.3%	0.8%	1.0%	0.9%	1.0%
Sub-total	20.6%	23.6%	20.4%	20.6%	20.1%	20.3%	17.2%	18.4%
Unrestricted Funds:								
Endowment	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
Sales & Service	1.3%	1.1%	0.5%	0.8%	0.8%	0.8%	0.6%	0.7%
Auxiliary	5.6%	5.8%	7.7%	7.0%	7.2%	6.6%	6.0%	5.6%
Other	0.0%	2.5%	0.0%	2.2%	0.0%	2.7%	2.3%	2.8%
Sub-total	7.0%	9.5%	8.3%	10.1%	8.1%	10.2%	9.0%	9.2%
Total:	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Percent Change in FTE	13.2%		3.1%		0.9%			

Notes:
1. Percentages may not add to 100.0% due to rounding.
2. Table does not include all two-year institutions according to the Katsinas and Lacey classifications; only publicly controlled institutions that reported for the IPEDS Enrollment and Finance modules for both Fiscal Years 1993 and 1997 were included.
3. This table groups the following IPEDS Finance Module revenue subcategories under "Workforce Development": (a) Federal Grants and Contracts; (b) State Grants and Contracts; (c) Local Grants and Contracts; and (d) Private Gifts and Contracts.
4. This table groups the following IPEDS Finance Module subcategories as "Unrestricted Funds":
   (a) Endowment Income; (b) Sales and Services of Educational Activities; (c) Auxiliary Enterprises; (d) Other Sources; and (e) Independent Operations.

Table 12

Comparison of Expenditures per FTE of Rural Community Colleges and the Universe of Publicly Controlled Community Colleges For Fiscal Years 1992-93 and 1996-97 (in constant 1997 Dollars)

FY 1992-93	Instruction	Research	Public Service	Academic Support	Student Services	Institutional Support	Operation & Maintenance	Scholarships & Fellowships	Transfers	Total E & G Expenditures	Auxiliary Enterprises	Independent Operations	Total Cur. Fd. Expenditures	Total E/G Empl. Compensation
Small	4,634	42	151	784	912	1,468	989	1,314	78	10,373	591	0	10,964	6,377
Medium	3,479	8	178	559	705	1,076	744	1,126	104	7,981	674	0	8,654	5,024
Large	3,167	9	225	490	614	913	642	918	135	7,113	541	0	7,654	4,551
Universe	3,144	10	141	513	655	934	636	771	102	6,905	446	13	7,364	4,660
Percentage of Total														
Small	42.3%	0.4%	1.4%	7.2%	8.3%	13.4%	9.0%	12.0%	0.7%	94.6%	5.4%	0.0%	100.0%	58.2%
Medium	40.2%	0.1%	2.1%	6.5%	8.2%	12.4%	8.6%	13.0%	1.2%	92.2%	7.8%	0.0%	100.0%	58.0%
Large	41.4%	0.1%	2.9%	6.4%	8.0%	11.9%	8.4%	12.0%	1.8%	92.9%	7.1%	0.0%	100.0%	59.5%
Universe	42.7%	0.1%	1.9%	7.0%	8.9%	12.7%	8.6%	10.5%	1.4%	93.8%	6.1%	0.2%	100.0%	63.3%
FY 1996-97														
Small	4,197	11	177	733	861	1,414	871	1,254	237	9,755	611	1	10,367	5,816
Medium	3,653	13	187	633	792	1,176	777	1,175	147	8,552	669	6	9,226	5,247
Large	3,437	2	247	596	688	1,053	700	932	166	7,821	585	5	8,411	4,949
Universe	3,351	5	171	598	723	1,086	712	896	142	7,682	472	3	8,158	4,903
Percentage of Total														
Small	40.5%	0.1%	1.7%	7.1%	8.3%	13.6%	8.4%	12.1%	2.3%	94.1%	5.9%	0.0%	100.0%	56.1%
Medium	39.6%	0.1%	2.0%	6.9%	8.6%	12.7%	8.4%	12.7%	1.6%	92.7%	7.2%	0.1%	100.0%	56.9%
Large	40.9%	0.0%	2.9%	7.1%	8.2%	12.5%	8.3%	11.1%	2.0%	93.0%	7.0%	0.1%	100.0%	58.8%
Universe	41.1%	0.1%	2.1%	7.3%	8.9%	13.3%	8.7%	11.0%	1.7%	94.2%	5.8%	0.0%	100.0%	60.1%
Percentage Change Between FY92-93 and FY96-97														
Small	-9.4%	-73.1%	17.3%	-6.5%	-5.6%	-3.7%	-12.0%	-4.6%	204.7%	-6.0%	3.4%	n/a	-5.4%	-8.8%
Medium	5.0%	67.5%	5.1%	13.2%	12.3%	9.3%	4.4%	4.3%	41.0%	7.2%	-0.7%	n/a	6.6%	4.5%
Large	8.5%	-80.2%	9.6%	21.7%	11.9%	15.2%	9.1%	1.6%	23.2%	10.0%	8.1%	n/a	9.9%	8.7%
Universe	6.6%	-46.1%	20.7%	16.6%	10.4%	16.3%	12.0%	16.2%	39.3%	11.3%	5.7%	-73.6%	10.8%	5.2%

Table 13
Percentage Distribution of Expenditures for Small-, Medium-, and Large-Sized Publicly Controlled Rural Community Colleges, Fiscal Years 1993 and 1997 (in constant 1997 dollars)

	Rural Community Colleges						Community Colleges, ALL	
	Small		Medium		Large			
	FY 93	FY97	FY 93	FY97	FY 93	FY97	FY 93	FY97
Education & General:								
Instruction	42.3%	40.5%	40.2%	39.6%	41.4%	40.9%	42.7%	41.1%
Research	0.4%	0.1%	0.1%	0.1%	0.1%	0.0%	0.1%	0.1%
Public Service	1.4%	1.7%	2.1%	2.0%	2.9%	2.9%	1.9%	2.1%
Academic Support	7.2%	7.1%	6.5%	6.9%	6.4%	7.1%	7.0%	7.3%
Student Services	8.3%	8.3%	8.2%	8.6%	8.0%	8.2%	8.9%	8.9%
Institutional Support	13.4%	13.6%	12.4%	12.7%	11.9%	12.5%	12.7%	13.3%
Plant Operations	9.0%	8.4%	8.6%	8.4%	8.4%	8.3%	8.6%	8.7%
Scholarship/Fellowship	12.0%	12.1%	13.0%	12.7%	12.0%	11.1%	10.2%	11.0%
Transfers	0.7%	2.3%	1.2%	1.6%	1.8%	2.0%	1.3%	1.8%
Sub-total, E &G:	94.7%	94.1%	92.3%	92.6%	92.9%	93.0%	93.4%	94.3%
Unrestricted Funds:								
Auxiliary	5.3%	5.9%	7.7%	7.3%	7.1%	7.0%	6.1%	5.7%
Other	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.5%	0.0%
Sub-total	5.3%	5.9%	7.7%	7.4%	7.1%	7.0%	6.6%	5.7%
Total Current Funds:	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Percent Change in FTE	13.2%		3.1%		0.9%			

Notes: 1. Percentages may not add to 100.0% due to rounding

2. Table does not include all two-year institutions according to the Katsinas and Lacey (in press) community college classification scheme; only publicly controlled institutions that reported data for both the IPEDS Enrollment and Finance modules for either Fiscal Years 1993 and 1997 were included.

3. This table grouped the IPEDS Finance Module expenditure subcategories of "Mandatory Transfers" and "Non-Mandatory Transfers" under the single category of "Transfer."

rurals to 20 percent at large rurals. The third largest was the federal category of workforce development, which includes federal, state, local, and private grants and contracts, which totaled around 15 percent for all three rural classifications. The fourth largest were average local appropriations, which ranged from 4.4 percent at small rurals to 13.4 percent at large rurals. The fifth largest revenue component was average auxiliary enterprises, which accounted for 5.6 percent at small rurals, 7.7 percent at medium rurals, and 7.2 percent at large rurals of the total current fund revenue per FTE.

A comparison of the fiscal year 1992-93 revenues and expenditures to fiscal year 1996-97, adjusted for inflation and expressed in constant 1997 dollars, revealed very similar patterns in both fiscal years. In 1996-97, the largest category of revenue per student FTE was still state appropriations, which averaged $2,804 or 37.4 percent of the total revenue. The second largest was tuition, which averaged $1,491 (19.9 percent); the third was local appropriations at $1,190 (15.9 percent); the fourth was average federal grants and contracts at $897 (12 percent); and the fifth was average auxiliary enterprises at $447, or 6 percent.

The largest components of revenue for fiscal 1996-97 continued to be state appropriations and tuition and fees. In fiscal year 1996-97, total current fund revenue per student FTE for small rurals was $10,445, medium rurals was $9,320, and large rurals was $8,502. A comparison to fiscal year 1992-93 total current fund revenues per FTE, adjusted for inflation, showed small rurals were down $328 or 3 percent, medium rurals were up $706 or 8.2 percent, and large rurals were up $931 or 12.3 percent. For all rural community colleges taken together, the largest line items of revenue growth were related to workforce development, specifically the categories of federal grants and contracts, and private grants and contracts. Two possible explanations of this growth include the idea that non-traditional resources are more plentiful during times of economic prosperity, and that federal and state governments may have chosen to expand their workforce training programs, encouraging community college efforts to expand their missions and become more involved in economic development programs.

A comparison of expenditures of fiscal years 1992-93 and 1996-97 showed that total current fund expenditures per FTE for small rurals decreased by $597 or 5.4 percent, while rising $572 or 6.6 percent at the medium rurals, and $757 or 9.9 percent at the large rurals. Lenington (1996) stated, "higher education is a labor-intensive business, and the faculty who provide the instruction and the personnel who support them represent the single largest expense for operating the institution" (p. 5). Interestingly, education and general expenditures for employee compensation per FTE decreased by $561 or 8.7 percent at small rurals and in the same proportion to the decline of $597 noted for total current fund expenditures per FTE. This phenomenon is likely due to reasons unrelated to rising efficiency since efficiency is a ratio of costs and outputs. Bowen commented in 1977 that "the difficulty in measuring educational efficiency is that the outputs come in the form of changes in peoples' lives" (p. 432).

A possible explanation is that small rurals have a lower revenue base of local appropriations upon which to rely, as compared to their medium- and large-sized rural counterparts. They also have less unrestricted funds and therefore less operating flexibility. On average, total current fund expenditures per FTE at medium- and large-sized rurals increased $572 and $757, respectively, and both rural classifications of institutions showed that their increases were in education and general expenditures per FTE. These increases appeared to be evenly spread across the different expenditure categories - instruction, research - signaling the effects of more normal growth and inflation during good economic times.

Finally, comparing current fund revenue per FTE to current fund expenditures per FTE between fiscal years 1992-93 and 1996-97 indicated, on average, a trend toward smaller operating margins. Overall the result shows a less favorable financial position for all rural community colleges, and a larger negative effect observed for small- and medium-sized rurals. The section that follows relates the ANOVA testing to the financial analysis of institutional capacity, to which attention is now turned.

Relating ANOVA Testing to Financial Analysis of Institutional Capacity

State Appropriations

State appropriations are the most important component of current fund revenue for any publicly controlled two- and four-year college or university. Table 10 showed that rural community colleges were significantly more dependent upon this source of funding than their suburban and urban counterparts. This single source of revenue represented approximately 40 percent of the academic budget for rural community colleges, making it a very sensitive line item should sudden and unexpected movements occur.

The 60-month period between 1992-93 and 1996-97 was generally considered to be good economically, demonstrated by strong national productivity ratios, high employment, and low inflation. During this period state governments have been able to turn their deficit balances into sizeable "rainy day" funds through increased sales and income tax receipts. In fact, Dr. Matthew V. Filipic, Senior Vice Chancellor for Administration for the Ohio Board of Regents, referred to the period as a "nirvana" for Ohio's state budget (personal communication, June 8, 1998). While state appropriations, which are primarily supported by sales and income taxes, represent the largest source of revenue for the general operations of public higher education, this source has seriously lagged during this period of high national prosperity. Hauptman (1991) wrote "when adjusted for inflation, state funding grew about 2.5 percent per year in the 1980s, compared to 1 percent in the late 1970s" (p. 118). Interestingly, after adjusting the period 1990 to 1998 for inflation, this author calculated the annual rate of growth in state appropriations to be under 2.5 percent. A reasonable explanation given for this phenomenon was provided by Layzell and Lyddon (1996), who believed that state funding was a product of political, economic, and demographic variables in the states (p. 313).

The financial data presented in Table 11 show that the amount of total state subsidy as a percentage of total current fund revenue for small-, medium-, and large-sized rural community colleges deteriorated in the five years between 1992-93 and 1996-97. This would indicate that state policy-makers have neglected to keep funding at a pace with the increasing numbers of students enrolling in community colleges. That is, Table 10 indicated that after adjusting for inflation, small-, medium-, and large-sized rural community colleges have experienced either a decline or only a modest growth in state appropriations per FTE between fiscal years 1992-93 and 1996-97. For small rural campuses the drop was 14 percent or $742 per FTE, while the amount of state subsidies at medium- and large-sized rural campuses grew 3.4 percent and 9.6 percent, respectively. Put another way, the 14 percent reduction in state tax support for small rural campuses was equivalent to absorbing a 6.9 percent decrease in total current fund revenue, while requests and demands for services increased.

The mid-1990s can be simply described as a period where programs and services have been provided to greater numbers of students while constant dollars available have either remained essentially stable or declined. Not surprisingly, this study confirmed what other researchers have found -- the reduction in state appropriations was accompanied by an increase in student tuition and fees as institutions attempted to narrow the widening gap between missions and resources. A lower public subsidy has thus resulted in rising tuition and fees along with the increased cost of doing ordinary business, such as the impact of new technology.

State funding formulas for higher education vary widely across the nation, but most attempt to link mission and finance by connecting funding and credit-based enrollment. This poses a special problem for community colleges and, in particular, for rural institutions, because an important portion of their time is devoted to continuing education programs and public service which are not necessarily associated with credit hours. Honeyman, Williamson, and Wattenbarger (1991) commented that funding sources for non-credit courses continue to be a highly volatile issue. Their survey showed most states favor a student fee basis for supporting non-credit courses for life-long learning, recreation and leisure, job training, and other certificate programs (p. 10).

Analysis of IPEDS data reveals a growing disjunction between the growth in enrollments and less growth-oriented state funding formulas. Between fiscal years 1992-93 and 1996-97, medium and large rural community colleges experienced increases in enrollment of .9 percent and 4.3 percent, respectively, compared to small rural community colleges whose enrollment increased dramatically, up 13.3 percent. The significant growth in enrollment at small rural campuses necessarily meant that there was less state subsidy to spread across the substantially larger base of students, therefore reducing drastically the amount of available state appropriations per FTE. The result was a real decrease in state support across the five year period. Essentially, small rural campuses have been caught in a short-term strategy of doing more with less state dollars per FTE, compared to the medium- and large-sized rural campuses, or suburban and urban counterparts. The observation made in 1980 by Richardson and Leslie, who characterized the financing of community colleges by methods that have "evolved but have generally lagged behind the resource requirements resulting from the assumption of new functions" (p. 43) is even more true today.

Local Appropriations

Richardson and Leslie reported in 1980 that "local funds are contributed in 26 states but are of major consequence (more than 10 percent of operating budgets) in only 19 states" (p. 19). This study found that in fiscal year 1996-97, local support as a percentage of total current fund revenues for small-sized rural campuses was 4.2 percent, medium-sized rural campuses was 8.1 percent, and large-sized rurals was 13 percent.

Between fiscal years 1992-93 and 1996-97, local support for small rural community colleges fell 9.1 percent, while medium- and large-sized rural community colleges experienced increases of 1.8 percent and 8.8 percent, respectively.

The general flatness and/or decline in local support at the small- and medium-sized rural community colleges is likely due to three factors. First, enrollment increased significantly at the small rural campuses compared to the medium- and large-sized rural campuses, while local support did not keep pace. Second is the general climate for lawmakers to promote performance-based budgeting, in which incentives are allegedly tied more closely to outcomes. Thus, what new dollars coming in are being allocated to support incentive funding, further restricting general operating subsidy since no new state dollars are being invested. Third, at all levels of government there is widespread political reluctance to introduce new taxes to increase financial support for public higher education. Large rural campuses often have a larger property tax base upon which to draw compared to small- and medium-sized rural community colleges.

The testing of local appropriations per FTE for variance and compatibility for all ANOVA trials revealed significant differences among the population means between the two fiscal periods. This suggests that enabling laws, policies, and practices toward local funding support vary widely between communities and across states. Some rural districts may be wealthy and can therefore afford to provide more local support than other communities. This is likely true for rural areas with good enabling laws allowing for distinctive levies [Illinois has this, Ohio does not], or rural areas with taxable extractive industry such as oil or natural gas. Additionally, that many rural community colleges are located in areas with a much lower tax base compared to their urban and suburban counterparts provides a strong prejudice or influence when reviewing the universe data. Finally, small rural community colleges often tend to serve areas of high poverty and high unemployment.

An apparent remedy for raising new resources or increasing a local district's tax basis is for the community to be prosperous. Recent thinking is to have rural community colleges get involved and become interdependent and establish strong and lasting ties with local community leaders (Boone, 1997). It is said that rural community colleges should be constructively involved in workforce training efforts that benefit the community by increasing wage bases and retaining and improving local enterprises, as well as attracting new businesses to the community. State initiatives requiring rural community colleges to extend and expand their educational resources to assist community leaders in the economic development process is problematic, given a flat resource base. It has become increasingly apparent that rural campuses *have* become involved in the demand side of labor markets - the employer side - and have become the force for job preparation and employment services. In essence, rural community colleges have both an opportunity to serve their local community as well as an important vested interest of ensuring economic development in their local community. Yet their institutional capacity and financial base are not geared up for the job.

Tuition & Fees Income

Tuition and fees income represents the second largest source of income for community colleges. Table 11 indicated that as a percentage of total current fund revenue, rural community colleges were at the average of their suburban and urban counterparts of roughly 19 percent. Between fiscal years 1992-93 and 1996-97, small- and large-sized rural community colleges showed a decline in tuition and fees as a percentage of total current fund revenue, while medium-sized rural campuses experienced a slight increase. A closer look showed that small rural community colleges appear to charge consistently low tuitions and fees to accomplish their missions compared to medium- and large-sized rural campuses. For example, Table 10 showed in fiscal year 1992-93, the average tuition and fees income per student FTE at small rural campuses equaled $1,936, well above the medium- and large-sized rural campuses of $1,584 and $1,518, respectively, and above the universe of publicly controlled community colleges' average tuition and fees income per FTE total $1,491, which includes the publicly controlled urban and suburban community colleges. By fiscal year 1996-97, tuition and fees per student FTE at small rural campuses had dropped to $1,846, down 4.6 percent, primarily due to their large increase in enrollment, compared to $1,766, up 11.5 percent, and $1,644, up 8.3 percent, at medium- and large-sized rural community colleges, respectively.

Rural community colleges are at a financial disadvantage when compared to their urban and suburban counterparts. Monies lost through the slippage of state and local appropriations are not fully offset by raising tuition and fees. The 2 percent decrease for rural community colleges in state appropriations would require a 5 percent increase in tuition and fees to offset a significant financial burden to students and their families.

Additionally, Tables 10 and 11 indicate that new dollars received for workforce development programs do not add up to break-even or fully compensate for the slippage in state appropriations. The leadership at rural campuses has therefore been forced to consider and/or implement higher tuition and fees policies and cutbacks in services in order to balance their already tight budgets, since the spread between flat or reduced state appropriations and rise in operating costs has grown at a rate far greater than CPI. As Campbell, Leverty, and Sayles (1996) stated, "if higher education is the budget balancer at the state level, tuition and fees are, in many cases, the budget balancer at the institutional level" (p. 176).

Experts including Bowen (1973, 1980a), Chambers (1976), Wattenbarger (1985), and Honeyman, Williamson, and Wattenbarger (1991) have all discussed the less favorable and negative impact of high tuition policies and the limiting prospect for access and opportunity of "have not" students to a postsecondary education. In 1973, Bowen stated:

> there are a number of reasons why tuition should remain low: for both cultural and economic reasons, higher education should be extended as widely as possible; opportunity should be opened to people of low income and limited backgrounds; the broad social benefits of higher education justify subsidy; the student's own time, expressed in foregone income, represents his fair share of the cost; and the sizable loss of income for students and the considerable effort involved in higher education are sufficient to prevent waste of educational services. (pp. 115-6)

Bowen in 1974 wrote, "I am skeptical about high-tuition proposals from the point of view of adequacy. I believe higher education might do better if the basic financial responsibility remained clearly with government and philanthropy" (1974b, p. 23). Ostar (1987) also argued that "the issues of equity and opportunity raised in discussing tuition and student financial policies relate to broad social policies, not just to higher education" (p. 149).

On the other hand, Breneman and Nelson (1981) argued for high tuition and student aid policies. This model is highly dependent upon financially secure economic conditions, with claims of increasing efficiency and equity by redistributing the financial burden among the various parties of interest. The fear is the increasing cost to attend college and declining state tax support threaten the future affordability, access, and opportunity. In particular, for rural community colleges this issue is troublesome as high tuition is particularly sensitive and complex. That rural campuses are frequently located in high poverty regions accompanied by high unemployment makes their financial position consistently more difficult to maintain, as the demands for serving communities' requirements continue to escalate. Finally, school related costs are often more expensive for students attending rural community colleges compared to students attending urban and suburban community colleges. Troublesome costs often cited by rural community college students include transportation and childcare.

Endowment Income and Private Gifts and Grants

The revenue categories of endowment income per FTE and private gifts and grants per FTE have traditionally represented very small portions of total current fund revenue.

Both revenue categories have generally reflected less than 1 percent of total current fund revenue and only recently has the category of private gifts and contracts moved upward as shown in the results for fiscal year 1996-97 in Tables 10 and 11. The lower endowment income at rural institutions corresponds directly to their operating character and practice of possessing very low operating margins.

Endowment income and private gifts and grants increase an institution's operating flexibility. Essentially, these funds enable colleges to leverage other operating revenues, especially tuition income, through the use institutional sponsored fellowships and scholarships. Two key inputs of institutional financial health are endowment size and endowment income, which at rural community colleges have been traditionally quite small. It is a common practice of institutions with weak financial positions to use new resources as needed when they become available, rather than saving and investing dollars for future use. Often new dollars are applied to cover current operating fund deficits, or to purchase equipment that supports new initiatives and/or programs, as state policy-makers and communities remain unabashed about requesting more from their local community colleges. The slight increase reflected in private gifts and contracts per FTE for fiscal year 1996-97 is likely due to the increased activity rural community colleges have had in forging collaboration and affiliation arrangements with local businesses, and furnishing them with technical advice and workforce training. Finally, the wholesale lack of endowment income and private gifts and grants forces rural community colleges to be more dependent upon other revenue streams that are available, particularly state funds.

Education & General Expenditures

The analysis of E&G expenditures showed consistently that significant statistical differences existed among rural campuses and the universe of public community colleges, and also among the rural campuses and universe of public community colleges between the two fiscal years 1992-93 and 1996-97. Tables 12 and 13 showed that E&G expenditures per FTE for small rural community colleges have seen a slight decline, while medium- and large-sized rural campuses have experienced slight increases. One reason for this phenomenon is that the economy's mild inflation rate in the mid-1990s has allowed for further price elasticity in purchasing operating goods and services and in employee compensation.

Unfortunately, community colleges at the state level compete with Medicaid, corrections, and needed investments in K-12 education, which have tended to "crowd out" investments in higher education. While solid state budgets have advanced or pushed up the level of expenditures at medium- and large-sized rural campuses, overall financial position remains precarious. Since a large portion of E&G expenditures are paying for people and buildings, campus presidents are left with few options and difficult decisions when attempting to balance already tight operating budgets.

Auxiliary Enterprises Expenditures

Tables 10 and 12 show that between fiscal periods 1992-93 and 1996-97, auxiliary enterprise revenue per FTE decreased .5 percent at medium rural campuses and increased only slightly at small- and large-sized rural campuses by .5 percent and 3.4 percent, respectively. In comparison, during the same fiscal period auxiliary enterprise expenditures per FTE grew on average at small rural campuses by 3.4 percent, at medium rural campuses by 10.3 percent, and at large rural campuses by 20.1 percent.

The likely cause was that many college campuses chose to outsource auxiliary enterprises such as the bookstore, dining services, and facilities maintenance operations. Outsourcing activities generally only provide a one-time meaningful pick-up of new cash before returning to a loss, break-even, or, at best, very slim margin. What is unclear from the IPEDS financial module is how the results of auxiliary enterprises were allocated. Rural campuses with either break-even or unprofitable auxiliary enterprises are likely being served by leaner management, supported by deferred maintenance, and/or subsidized by other areas of operations.

Education & General Expenditures - Employee Compensation

As mentioned earlier, most of the ANOVA statistical trials for expenditures indicated that there were significant statistical differences among the patterns for means of expenditures per FTE of rural campuses and the universe of publicly controlled community colleges for fiscal periods 1992-93 and 1996-97. Until recently, higher education had never really experienced the full effect of economic retrenchment activities on a regional or national scale. This modern day national trend of institutions having to deal with less or limited resources has forced rural, urban, and suburban campuses into offering early retirement to faculty, downsizing, and/or experimenting with other ways to slow the rise of employee compensation or even lower employee compensation.

In addition, movements between fiscal periods 1992-93 and 1996-97 indicated that expenditures per FTE for instruction, public service, and academic support increased, while E&G expenditures - employee compensation per FTE decreased. It appears that the higher levels of enrollment in recent years have brought about standard shifts in E&G expenditures, while the lower percentage of employee compensation indicated a much leaner staff and faculty. Finally, because most business decisions are far-reaching, using weak or inadequate financial data to make decisions will likely provide a less desirable or wrong result when considering how to best cut or reduce institutional costs.

Summary

The primary and secondary research questions for the study introduced in the first chapter were analyzed in this Chapter. The analysis of the publicly controlled small-, medium-, and large-size rural community colleges and the universe of publicly controlled-rural, suburban, and urban-community colleges for fiscal years 1992-93 and 1996-97 was based upon the revenue and expenditures obtained from the IPEDS data base. Definitions from the Katsinas and Lacey (in press) classification system allowed for the rural community colleges to be separated into small-, medium-, and large-sized designations.

In summary, there were a total of 54 ANOVA tests performed on 6 revenue categories and 3 expenditure categories. The ANOVA tests showed that 31, or 57 percent, of the comparisons revealed significant statistical differences among the means of various revenue and expenditure categories. In the remaining 23 tests, or 43 percent, the

ANOVA tests found no significant statistical differences existed among the means of various revenue and expenditure categories. Additionally, the ANOVA results for fiscal year 1992-93 were split, with 10 tests finding significant differences while 8 tests yielded no differences. In fiscal year 1996-97, significant differences were detected 10 times, compared to 8 tests finding that no differences existed. The ANOVA tests between the two fiscal years 1992-93 and 1996-97 found 11 significant differences, and 7 with no significant differences.

A comparison of the 6 revenue and 3 expenditure categories indicated that for local appropriations per student FTE, E&G expenditures per student FTE, and E&G expenditures per student for employee compensation, all of the ANOVA tests found significant statistical differences existed among and between the means. A majority of the ANOVA tests showed significant differences existed with the means of state appropriations per student FTE while no significant differences were detected more often with the means of private gifts and grants per student FTE and auxiliary enterprises per student FTE. The ANOVA test results for tuition and fees per student FTE and federal appropriations per student FTE were split evenly, half yes and half no. No significant statistical differences were found when testing among and between the means of endowment income per student FTE.

The ANOVA tests indicate that having to rely on averages is a less suitable benchmark to make decisions about funding patterns or cost behaviors among community colleges and can lead to less informed decision-making. Halstead (1991) remarked that "mean or median values are intangible, i.e., they are mathematical concepts without any commanding physical presence actually observable. Comparisons with the average thus lack a certain reality" (p. 148). Finally, in their book, Statistics for Management and Economic, Mendenhall, Reinmuth, Beavers, and Duhan stated "you may feel that the above conclusions could have been made on . . . visual observation of the treatment means. However, it is not difficult to construct a set of data that will lead the 'visual' decision maker to erroneous results" (p. 424). Attention is now given to Chapter Five, which presents this study's findings, conclusions, and recommendations for policy and further study.

CHAPTER FIVE

FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS FOR POLICY AND FURTHER STUDY

Introduction

In his 1981 article, "Cost Differences: The Amazing Disparity Among Institutions of Higher Education in Educational Cost per Student," the late Howard R. Bowen, an eminent economist of U.S. higher education and former university president, suggested that differences in institutional costs were not surprising and should, in fact, be expected. Bowen argued that different institutions had different functions (public versus private, two-year versus four-year), and that geographical and other differences would be logically represented in the comparable costs of institutions. But how much cost differences are acceptable, particularly among public institutions funded by state legislatures that purport to treat different institutions fairly and equitably? The purpose of this study was to examine the institutional capacity of rural community colleges.

The literature review presented in Chapter Two found the following: (1) a small, largely anecdotally-based literature about issues, challenges, concerns, and problems related to providing access within the rural community college setting; (2) few publications pertaining to community college finance generally; (3) a nearly nonexistent literature specifically oriented to finance of rural community colleges; (4) limited literature on state policy as related to rural community colleges; (5) little literature on state policy related to economic development and community colleges; and (6) an emerging literature related to use of the rural community college by policy makers in the federal government, the state governments, and within policy-oriented foundations to address economic development and workforce training issues. Most of the publications related to this emerging literature advocated the expanded use of rural community colleges to ameliorate poverty conditions in economically distressed regions of the United States, including Appalachia, the Lower Mississippi Valley, the Border region of south Texas, the Four Corners region of the American southwest, and the High Plains region served by Tribal Colleges. The Ford Foundation's Rural Community College Initiative (RCCI), which is managed by MDC, Inc., a nonprofit organization located in Chapel Hill, North Carolina, as of January 1999, has provided much of the impetus for this. For example, grants have totaled $45 million to 24 rural community colleges in the five years of RCCI's existence. These program grants have been augmented by technical assistance and other resources to build capacity to promote the twin goals of providing access and economic development. The Office of Community College Liaison within the U.S. Department of Education has also contributed to programming specifically oriented to the needs of rural community colleges in the past five years.

Chapter Two also discussed the growing awareness within the policy making and research community of the damaging effects of lumping all community colleges together into a single classification as they consider initiatives to broaden access to higher education and rural economic development (interestingly, the Katsinas and Lacey [in press] classifications were used by MDC officials as part of the selection process in assessing which rural community colleges would be invited to participate). The classification scheme most widely accepted by state and federal policy-makers was first developed by Clark Kerr for the Carnegie Council for Policy Studies in Higher Education in 1973 and 1976, and updated by the Carnegie Foundation for the Advancement of Teaching in 1987 and 1994. The 1994 edition included eight separate classifications for 1,431 four-year institutions, yet grouped all 1,471 two-year institutions together under the single classification "Associate of Arts Granting Institutions." Data published by the Department of Education's National Center for Education Statistics (NCES) also groups all community colleges together using the IPEDS data base. Since the literature of higher education is formed in a process that is somewhat analogous to the forming of stalagmites and stalactites--one drop at a time, drop by drop, over many years--failure to develop some meaningful classifications has served to mask differences between institutions that are, in reality, quite diverse (Katsinas, 1996). Here is the power of Kerr's Carnegie classifications, as Katsinas noted in his 1996 article, Preparing Leaders for Diverse Institutional Settings.

Unfortunately and probably unintentionally, the lack of a standard nomenclature has probably resulted in a bias toward urban and suburban-based two-year institutions in the public policy debate. For example, in their influential 1981 work, Financing Community Colleges: An Economic Perspective, David Breneman and Susan Nelson argued the proposition that, due to the wide prevalence and easy access to federal student financial aid, states should end low tuition at their publicly controlled community colleges.

There was no reason, they argued, not to peg tuition and fees at community colleges to the one-third of instructional cost recommendation for four-year public universities and colleges made in the 1973 report of the Carnegie Commission on Higher Education Policy Studies, Who Pays? Who Benefits? Who Should Pay? A Report and Recommendation. Undergirding their argument, made from an economic perspective, was that the purpose of federal financial aid was to cover tuition costs alone, and that therefore a high tuition/high aid policy was more efficient and more effective (Breneman and Nelson, 1981).

Recent years have seen increased emphasis on the part of federal and state policy makers to use community colleges as vehicles to meet state economic development and workforce development goals and policy objectives (Katsinas and Miller, 1998). Interestingly, grouping all community colleges together into a single classification may actually be antithetical toward the economic development and access goals of state and federal policy-makers. With particular reference to the problems, challenges, and barriers to effective policies in rural areas, does sufficient institutional capacity exist for rural community colleges to be able to provide *both* access and economic development? A necessary starting point for such analysis is to empirically describe rural community colleges distinct from the universe of publicly controlled institutions, which the study at hand purports to do using objective financial data from nationally respected sources. Without employing such an objectively based classification system, one that distinguishes between community colleges on the basis of clearly measurable U.S. Bureau of the Census definitions, no clear delineation or distinction beyond determination of whether or not the two-year institution is publicly or privately controlled exists. Attention is now turned to presentation of the major findings of this study.

Findings

This study utilized the Financial Module of the U.S. Department of Education National Center for Education Statistics Integrated Postsecondary Education Data System (IPEDS) data base to examine the revenue and expenditure components of publicly controlled community colleges. The Katsinas and Lacey (in press) classification system for community colleges, which separated the nation's publicly controlled community colleges into seven major subcategories, was employed (see Table 4, on page 97, above). The Katsinas and Lacey classifications allowed for initial identification of publicly controlled community colleges into three major categories (urban, suburban, and rural), and allowed for further subclassification into small-, medium-, and large-sized based on enrollment (under 1,000, 1000-2,500, and over 2,500 students, respectively).

This study tested the means of the revenues and expenditures of small-, medium-, and large-sized rural community colleges and the universe of publicly controlled community colleges from fiscal years 1992-93 and 1996-97 derived from the IPEDS surveys. The financial variables for fiscal year 1992-93 were adjusted for inflation by converting the revenue and expenditures into constant 1997 dollars using the U.S. Department of Labor's Consumer Price Index (CPI) for all urban consumers. By using the full-time equivalent (FTE) formula for each of the reporting community colleges provided by the National Center for Education Statistics (NCES), all revenue and expenditure variables for fiscal years 1992-93 and 1996-97 could then be converted into revenues per student FTE and expenditures per student FTE for comparison purposes. College and university presidents, chief financial officers, state higher education agency officials, and state legislators and governors generally agree that equity and fairness are important in the allocation of funds. It follows, therefore, that financial measurement based upon student FTE revenues and expenditures brings the issue down to its most basic component: How much money is spent per student?

The Analysis of Variance (ANOVA) Single Factor technique, advanced by Mendenhall, Reinmuth, Beaver, and Duhan (1986) and Robert Johnson (1996), was used to test the statistical difference among the means of selected revenues per student FTE and expenditures per student FTE among publicly controlled small-, medium-, and large-sized rural community colleges, as well as the means of the revenues per FTE and expenditures per FTE for the universe of community colleges (which represented the lump-sum of all publicly controlled community colleges - urban, suburban, and rural) for fiscal years 1992-93 and 1996-97. Each ANOVA model calculated a p-value which was compared to a commonly accepted value for alpha of .05. This comparison determined whether the means of the various revenue and expenditure variables being tested were statistically equal or if a significant statistical difference existed. For example, if the ANOVA test calculated a p-value that was greater than the predetermined .05 alpha factor, that result meant the means were statistically equal. Otherwise, if the calculated p-value was smaller than the .05 alpha value, that meant there was at least one significant statistical difference among the means and that the means were not statistically equal.

The ANOVA tests were deemed an appropriate tool for comparing the financial base of different types of community colleges, in as much as institutional capacity was the central focus of this study. Currently, the NCES and the Carnegie Foundation for the Advancement of Teaching's classifications (1973, updated in 1976, 1987, and 1994), lump community colleges together under a single classification, as if a giant urban five-campus district such as Miami-Dade Community College (FL) and a small, rural community college such as Northwest State Community College (OH) have the exact same missions, functions, and programs. A secondary purpose of this study, therefore, was to empirically assess if the classification scheme developed by Katsinas and Lacey (in press), which distinguishes publicly controlled community colleges into three major categories (rural, urban, and suburban) is supported by an analysis of data from the IPEDS Finance Module. Katsinas (1996) in particular has posited that the smaller the institution, the more reliant it would likely be upon state funding, due to the relative unavailability of local appropriations and tuition and fees income. For this reason, ANOVA results are presented comparing: (1) small-, medium-, and large-sized publicly controlled rural community colleges, and (2) small-, medium-, and large-sized public rural community colleges to the universe of all public community colleges.

Three findings that follow relate to the three major research questions and accompanying secondary research questions first posed in Chapter One and subsequently addressed in Chapter Four. Table 6 (on page 113 above) indicated that the IPEDS data base contained 1,099 and 1,058 publicly controlled community colleges in fiscal years 1992-93 and 1996-97, respectively. Of that, the entire universe of publicly controlled community colleges consisted of 918 in fiscal year 1992-93 and 892 in fiscal year 1996-97 that reported both enrollment and financial information in either fiscal year. The very high rate of useable data -- 84% of the universe -- was deemed good for the analysis employed. Using the Katsinas and Lacey (in press) classification system for community colleges 561 and 569 rural community colleges were identified in fiscal years 1992-93 and 1996-97, respectively.[7] Of that, the publicly controlled rural community colleges were separated into 88 small-, 219 medium-, and 254 large-sized in fiscal year 1992-93 and 98 small-, 214 medium-, and 257 large-sized in fiscal year 1996-97. In total, the three subcategories of publicly controlled rural community colleges represented 61.1 percent and 63.8 percent of the universe of publicly controlled community colleges, respectively, which again was deemed to be useful for this study.

1. There were significant differences in the revenue and expenditure patterns per student FTE between small-, medium-, and large-sized rural community colleges compared to the universe of community colleges in the United States for fiscal year 1992-93.

Table 14, which summarizes the ANOVA results, shows that 67 percent of the tests performed among the means of revenue per student FTE and expenditures per student FTE of the small-, medium-, and large-sized publicly controlled rural community colleges revealed significant differences. Comparing the means of revenue per FTE and expenditures per FTE of small-, medium-, and large-sized rural community colleges to the means of revenue per FTE and expenditures per FTE of the universe of publicly controlled

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[7] The discrepancy between the total number of institutions reporting in both years is explained by the existence of urban and suburban multi-campus community college districts that report data by each campus.

Table 14
Summary of ANOVA Testing of Revenue and Expenditure IPEDS Data of Small-. Medium-, and Large-Sized Rural Community Colleges, and the Universe of All Publicly Controlled Community Colleges, 1992-93 and 1996-97

	Fiscal Year 1992-93		Fiscal Year 1996-97		Changes Between Fiscal Years 92-93 & 96-97		Total	
	Small, Medium, & Large	Small, Medium, Large, & Universe	Small, Medium, & Large	Small, Medium, Large, & Universe	Small, Medium, & Large	Small, Medium, Large, & Universe	Percent YES	Percent NO
Revenue								
State Appropriations	YES	NO	YES	YES	YES	NO	*67%*	*33%*
Local Appropriations	YES	YES	YES	YES	YES	YES	*100%*	*0%*
Federal Appropriations	YES	NO	YES	NO	YES	NO	*50%*	*50%*
Tuition & Fees	YES	YES	NO	NO	YES	NO	*50%*	*50%*
Endowment Income	NO	NO	NO	NO	NO	NO	*0%*	*100%*
Private Gifts & Grants	NO	NO	NO	NO	YES	NO	*17%*	*83%*
Expenditures								
Educational & General	YES	YES	YES	YES	YES	YES	*100%*	*0%*
Auxiliary Enterprises	NO	NO	NO	YES	NO	YES	*33%*	*67%*
E&G Employee Compensation	YES	YES	YES	YES	YES	YES	*100%*	*0%*
Percent YES, Total	*67%*	*44%*	*56%*	*56%*	*78%*	*44%*	57%	
Percent NO, Total	*33%*	*56%*	*44%*	*44%*	*22%*	*56%*		*43%*

Notes: (1) "YES" indicates significant statistical difference and "NO" indicates no significant statistical difference.
(2) E&G -employee compensation includes all salaries and benefits for all institutional employees.
(3) All percentages have been rounded up or down accordingly.

community colleges revealed that 44 percent of the ANOVA tests concluded a significant difference existed. In total, of the 18 ANOVA tests performed comparing the means of the revenue per FTE and expenditures per FTE, 56 percent reported a significant difference existed for fiscal year 1992-93.

The ANOVA testing revealed statistically significant differences in the means for the community college revenue categories of state appropriations per student FTE, local appropriations per student FTE, federal appropriations per student FTE, and tuition and fees per student FTE. Statistically significant differences in the means for the key community college expenditure categories of E&G expenditures per student FTE and E&G expenditures-employee compensation per student FTE were also found. Those revenue and expenditure categories that showed no significant difference included endowment income per student FTE, private gifts and grants per student FTE, and auxiliary enterprises expenditures per student FTE. This result was not surprising, in that it is well known that most community colleges have very small endowments, except in the case of the largest multi-campus districts, and limited income from auxiliary enterprises.

Use of ANOVA testing of the means of revenues per student FTE and expenditures per student FTE for significant differences among the small-, medium-, and large-sized rural community colleges and the universe of publicly controlled community colleges for fiscal year 1992-93 revealed significant differences within two revenue categories -- (1) local appropriations per student FTE, and (2) tuition and fees per student FTE -- as well as two expenditure categories, (3) E&G expenditures per student FTE, and (4) E&G expenditures-employee compensation per student FTE. No statistical differences were found among the means of state appropriations per student FTE, federal appropriations per student FTE, endowment income per student FTE, private gifts and grants per student FTE, and auxiliary enterprises expenditures per student FTE.

The ANOVA testing of significant differences for fiscal year 1992-93 among the means of (1) revenues per student FTE and expenditures per student FTE of small-, medium-, and large-sized rural community colleges and, (2) among the small-, medium-, and large-sized rural campuses compared to the universe of publicly controlled community colleges showed the prevailing relationships and patterns of revenues and expenditures for fiscal year 1992-93. First, a majority (67%) indicated that the means of the selected revenues per FTE and expenditures per FTE of small-, medium-, and large-sized rural community colleges were not statistically equal. Second, statistical evidence showed that significant differences often existed (44%) between small-, medium-, and large-sized rural institutions and the universe of publicly controlled community colleges. Third, the practice of NCES, Carnegie Foundation for the Advancement of Teaching, and others of lumping community colleges into a single classification smothers the innate differences that are well known by practitioners. The overall inconsistencies or significant statistical differences shown in the outcome data indicated that the natural tendency of using averages to report and/or compare revenues and expenditures per student FTE of community colleges revealed that for a majority of the tests (56%), publicly controlled rural community colleges were not represented fairly for fiscal year 1992-93.

2. There were significant differences in the revenue and expenditure patterns per student FTE between small-, medium-, and large-sized rural based community colleges compared to the universe of community colleges in the United States for fiscal year

1996-97.

For fiscal year 1996-97, the ANOVA testing provided statistical evidence that for a majority of cases, the means of the selected revenues per student FTE and expenditures per student FTE among the small-, medium-, and large-sized rural community colleges showed significant differences existed. Table 14 indicated that 56 percent of the tests performed on revenue per FTE and expenditures per FTE of small-, medium-, and large-sized rural community colleges revealed a significant difference existed among the means. Additionally, a comparison of the means of revenue per FTE and expenditures per FTE of small-, medium-, and large-sized rural community colleges to the means of revenue per FTE and expenditures per FTE of the universe of publicly controlled community colleges showed that a significant difference existed in 56 percent of the ANOVA tests. Of the 18 ANOVA tests performed for 1996-97 that compared the means of revenue and expenditures per student FTE, 56 percent revealed that the means were not statistically equal.

The detailed results of using ANOVA to test the means of selected revenue and expenditure variables of small-, medium-, and large-sized publicly controlled rural community colleges showed that significant statistical differences were detected within the categories of state appropriations per FTE, local appropriations per FTE, federal appropriations per FTE, E&G expenditures per FTE, and E&G expenditures-employee compensation per FTE. Revenue and expenditure categories that showed no sign of a significant statistical difference included tuition and fees per FTE, endowment income per FTE, private gifts and grants per FTE, and auxiliary enterprises expenditures per FTE.

Using ANOVA to test the means of selected revenue and expenditure categories for statistical differences among the small-, medium-, and large-sized public rural community colleges and the universe of public community colleges found significant differences existed within state appropriations per FTE, local appropriations per FTE, E&G expenditures per FTE, auxiliary enterprises expenditures per FTE, and E&G expenditures-employee compensation per FTE. Finally, no significant differences were found among the means of tuition and fees per FTE, federal appropriations per FTE, endowment income per FTE, and private gifts and grants per FTE.

The determination that significant statistical differences existed among the means of certain revenues per student FTE and expenditures per student FTE of small-, medium, and large-sized public rural community colleges along with comparing the small-, medium-, and large-sized public rural campuses to the universe of public community colleges allows an assessment of patterns among the various financial categories. First, a majority (56%) of the ANOVA tests indicated that the means of selected revenues per FTE and expenditures per FTE were not statistically equal among the small-, medium-, and large-sized rural community colleges. Second, statistically significant differences existed among the means of selected revenues per FTE and expenditures per FTE in a majority (56%) of the ANOVA tests when comparing the small-, medium-, and large-sized rural community colleges and the universe of community colleges. Third, again as in fiscal year 1992-93, reports published by NCES, Carnegie Foundation for the Advancement of Teaching, and others that lump all community colleges into a single classification masks the inherent differences that are well known by practitioners. The significant statistical differences revealed in the overall outcome data indicated for a majority of cases (56%), using averages to report and/or compare the selected revenues and expenditures per student FTE does not represent fairly publicly controlled rural community colleges for fiscal year 1996-97

3. There were significant changes in the revenue and expenditure patterns per student FTE between small-, medium-, and large-sized rural based community colleges compared to the universe of community colleges in the United States between fiscal years 1992-93 and 1996-97.

This finding is supported through two interrelated analyses. First, the ANOVA testing described in Table 14 is detailed above. Second are two financial comparisons of the relative financial position of rural community colleges. Table 15 compares inflation-adjusted revenues per student FTE and expenditures per student FTE of publicly controlled rural small-, medium-, and large-sized community colleges compared to the universe of all publicly controlled community colleges for fiscal years 1992-93 and 1996-97. Additionally, Figure 1 shows the percentage change in sources of revenue, adjusted for inflation, for public rural community colleges and all public community colleges for fiscal years 1992-93 and 1996-97.

In comparing fiscal years 1992-93 and 1996-97, the ANOVA trials provided statistical evidence that significant differences existed in a majority of tests of selected revenues per student FTE and expenditures per student FTE among the small-, medium-, and large-sized public rural community colleges. Table 14 shows that 78 percent of the tests revealed the existence of significant statistical differences. Upon comparing the means of selected revenues per FTE and expenditures per FTE for small-, medium-, and large-sized public rural community colleges to the means of revenue per FTE and expenditures per FTE for the universe of public community colleges, ANOVA tests determined significant statistical differences existed in 44 percent of the trials. Overall, 61 percent of the 18 ANOVA tests used to compare the means of the selected revenues per student FTE and expenditures per student FTE between fiscal years 1992-93 and 1996-97 reported the means were not statistically equal.

The ANOVA testing of the means of selected revenue and expenditure variables of small-, medium-, and large-sized publicly controlled rural community colleges revealed significant statistical differences within the categories of state appropriations per FTE, local appropriations per FTE, federal appropriations per FTE, tuition and fees per FTE, private gifts and grants per FTE, E&G expenditures per FTE, and E&G expenditures - employee compensation per FTE. Revenue and expenditure categories where no sign of a significant statistical difference was detected included endowment income per FTE and auxiliary enterprises expenditures per FTE. Furthermore, using ANOVA to test the means of selected revenue and expenditure groupings for significant statistical differences among the small-, medium-, and large-sized public rural community colleges and the universe of public community colleges between the two fiscal periods (1992-93 and 1996-96) found significant statistical differences existed within local appropriations per FTE, E&G expenditures per FTE, auxiliary enterprises expenditures per FTE, and E&G expenditures-employee compensation per FTE. No significant statistical differences were detected among the means of state appropriations per FTE, federal appropriations per FTE, tuition and fees per FTE, endowment income per FTE, and private gifts and grants per FTE.

The large number of significant statistical differences among the means of the selected revenues and expenditures per student FTE between fiscal periods 1992-93 and 1996-97 of small-, medium, and large-sized publicly controlled rural community colleges and a comparison of the small-, medium-, and large-sized public rural community colleges to the universe of public community colleges revealed three points of interest. First, a majority (78%) of the ANOVA test results indicated that the means of selected revenues per student FTE and expenditures per student FTE for public rural community colleges were not statistically equal. Second, significant statistical differences existed in nearly half (44%) of the tests comparing small-, medium-, and large-sized public rural community colleges to the universe of public community colleges. Third, again as revealed while analyzing individually fiscal years 1992-93 and 1996-97, data produced by NCES, Carnegie Foundation for the Advancement of Teaching, and others that lump all community colleges into a single classification conceal the fundamental diversity that is well known by practitioners. More specifically, 61 percent of the 18 ANOVA tests used to compare the means of selected revenues and expenditures per student FTE of small-, medium-, and large-sized publicly controlled rural community colleges and comparing small-, medium-, and large-sized publicly controlled rural community colleges to the universe of publicly controlled community colleges reported a significant statistical difference existed between fiscal years 1992-93 and 1996-97.

Table 15 summarizes the financial results and changes in the operating margins for small-, medium-, and large-sized rural community colleges, urban and suburban rural community colleges, and the universe of publicly controlled community colleges for fiscal years 1992-93 and 1996-97. The difference between revenue per student FTE and expenditures per student FTE determined whether there was a positive or negative balance in the operating results for each fiscal year examined. This net margin is expressed both numerically and on a percentage basis. This presents a clear snapshot of an organization's short- and long-term ability to meet current and future commitments. Declining net margins in the institutional operating results, over time, reveal a weakening revenue stream relative to expenditures and indicate that revenue is not keeping pace with increased activity.

In general, the financial results were consistent with one exception. The financial picture for small rural community colleges improved more from an average net operating margin loss of minus 7.5 percent to a positive balance of 0.7 percent between fiscal years 1992-93 and 1996-97 compared to medium- and large-sized rural counterparts. Still, this could hardly be characterized as good financial health. In this context, it is important to note that these positive net balances in the operating results remained well below the industry benchmark. The striking feature of this analysis indicated that, on average, the financial health of rural community colleges deteriorated dramatically between fiscal years 1992-93 and 1996-97, despite five of the best years of economic health since World War II. Further, the lower per FTE operating costs of suburban and urban community colleges **magnifies** the cost differences with rural community colleges. This five-year period of

Table 15
Changes in the Net Operating Balances of Rural Community Colleges Compared to Urban and Suburban and All Community Colleges, Fiscal Years 1992-93 and 1996-97 (in inflation adjusted, constant 1997 Dollars)

	Small		Medium		Large		Urban & Suburban Community Colleges		All Community Colleges	
	1992-93	1996-97	1992-93	1996-97	1992-93	1996-97	1992-93	1996-97	1992-93	1996-97
Revenue/FTE	$10,733	$10,445	$8,614	$9,320	$7,571	$8,502	$7,446	$7,793	$7,674	$8,201
Expenditures/FTE	10,964	10,367	8,654	9,226	7,654	8,411	7,074	7,788	7,364	8,158
Net Margin	$ (809)	$ 78	$ (40)	$ 94	$ (83)	$ 91	$372	$0	$ 310	$43
Net Margin Ratio	-7.5%	0.7%	-0.4%	1.0%	-1.0%	1.1%	1.9%	0.0%	4.0%	0.5%
Percent Change in FTE	13.1%		3.1%		0.9%					

Notes: All community colleges includes urban and suburban publicly controlled community colleges. This table does not include all two-year institutions according to the Katsinas and Lacey community college classification scheme. Only publicly controlled institutions that reported data for both the IPEDS Enrollment and Finance modules in either Fiscal Years 1992-93 and 1996-97 were included. The number of reporting colleges was as follows: (1) Small-sized colleges reporting--88 in FY92-93, 98 in FY96-97; (2) Medium-sized colleges reporting--219 in FY92-93, 214 in FY96-97; (3) Large-Sized colleges reporting--254 in FY92-93, 257 in FY96-97; (4) Universe (all) reporting publicly controlled community colleges reporting--918 in FY92-93, 892 in FY96-97. The net margin ratio was calculated by dividing the net margin by the revenue per FTE.

1992-93 to 1996-97 is also part of the longest peacetime expansion on record as described in the Economic Report of the President for 1999 (p. 19-21).

The Common Fund is a non-profit corporation that provides specialized technical assistance to colleges and universities related to the investment of their endowment funds and other cash balances. Created in the early 1970s with a grant from the Ford Foundation, the Common Fund allows small endowment holding colleges and universities the ability to pool their funds and obtain together specialized management assistance that they otherwise could not afford for endowment building purposes. A 1992 report by The Common Fund revealed that in the early 1990s, most states encountered deficits. The timing could not have been worse, as the budgets of the states experienced recession-driven shortfalls in tax revenues with the responsibility of increased spending as more social programs shifted from the federal level to the state level (p. 19). Put differently, the delicate financial position that rural community colleges find themselves in today is in marked contrast to the overall well-being of the community colleges nationally, the positive financial picture of nearly every state budget in the country, and the national economy, which during the past 94 months has generated unprecedented prosperity and yielded both high employment and low inflation. It may also indirectly indicate that economic recovery has been slower in a large part of rural America following the 1990-91 recession.

In 1998, Dun & Bradstreet Credit Services (D&B) issued a report entitled Industry Norms. This report compared the financial conditions of community colleges, placing them into upper, medium, and lower quartiles. The motivation for D&B to assess the relative financial health of institutions of higher education, including community colleges, has to do with the desire on the part of institutions of higher education to access capital markets. By evaluating their revenue streams as compared to their expenditures, D&B is then able to determine if a given institution is a "good risk" for financing bonds that would be used for capital investment, including the physical plant and related equipment. The 1998 D&B report showed that the net margins for community colleges in the upper quartile equaled 7 percent, the medium group equaled 3.5 percent, and the lower quartile equaled 1.6 percent (p. 205). By comparison, Table 15 showed that for fiscal year 1996-97, on average the operating results of the small rural community colleges was 0.7 percent, medium rural community colleges was 1.0 percent, and large rural community colleges was 1.1 percent, all well below the lower quartile for the community college industry nationwide. A logical conclusion is that rural community colleges have experienced ongoing financial pressure and possess a more limited ability to meet the infrastructure challenges of a high-tech economy. Interestingly, during this period of economic prosperity, the U.S. Bureau of the Census in its 1998 Statistical Abstract of the United States indicated that a 1997 survey of all states showed the lowest investment grade rating given by Standard and Poor's Investment Services was "A-." In comparison, most public rural community colleges would likely have a credit rating below investment grade because of their weak financial position and higher risk factor.

Together these national reports reinforce the data presented in this study which show that rural community colleges approach the new century in a weak financial position. These data also show that the direction of the financial capacity of rural community colleges is not positive, and is in fact weaker relative to the position of community colleges nationally, and higher education as an industry. Despite the remarkable growth and transformation of the American economy in recent years, reduced state support continues to create financial problems at rural community colleges. As Breneman (1993) has pointed out, this problem is faced by all sectors of American higher education. For rural community colleges, the lack of sufficient institutional capacity can be regarded as a fact of life rather than a passing inconvenience. This negative financial position threatens the viability of rural community colleges to maintain academic and curricular currency in terms of purchasing the latest technology needed to keep their programs and graduates competitive in a global market.

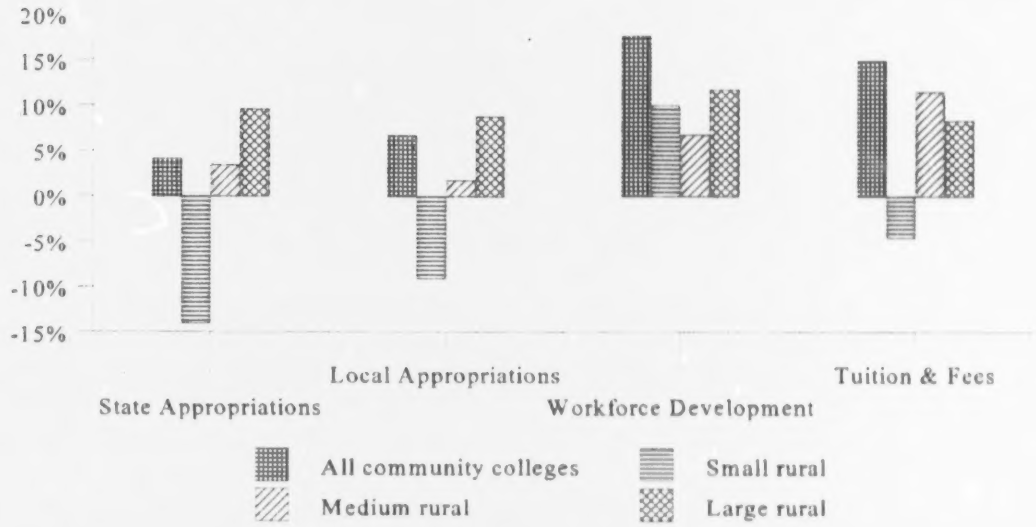
In addressing the economic development challenge, The Commission for Education Quality commented in 1994 that community colleges have a particularly prominent role in training and retraining workers for jobs in new industries. "The growing success of apprenticeship programs means that two-year colleges will be even more important partners with businesses and schools in technical job training" (p. 23). Assuming the American job market grows by 18.6 million persons between 1996 and 2006, as predicted in a 1998 study by the American Association of State Colleges and Universities (AASCU), the transition from jobs requiring no postsecondary education to those requiring a college degree can be expected to continue unabated. The critical point is higher education's role in developing human capital will increase over the next decade (p. 1). Rural community colleges are challenged to address new demands in educating the labor force with a weaker financial base than the previous decade, increasingly tight institutional budgets, and, generally, a more restricted institutional capacity.

4. There was a significant percentage decrease in overall revenues per student FTE, adjusted for inflation, between fiscal years 1992-93 and 1996-97. This has forced all community colleges to seek alternative revenue streams, and has put rural community colleges at a disadvantage.

Figure 1 shows the percentage change in major sources of revenue supporting publicly controlled rural community colleges and the universe of publicly controlled community colleges between fiscal years 1992-93 and 1996-97. One important shift has been the narrowing gap between tuition and fees and state support as the increase in tuition has attempted to offset a portion of receiving smaller increases or even less state support. Many commentators have suggested that the decline in state support has been a motivating factor for community colleges to become active players in the workforce training and economic development arena (Palmer, 1996; Clowes and Hawthorne, 1995; Daugherty, 1994; and Daugherty 1998). These data support the proposition that suburban and urban community colleges have had a greater ability to access alternative, non-traditional revenue streams, such as workforce training, as compared to rural community colleges. The relative inability of rural community colleges to gain significant workforce training contracts thus serves to increase their reliance upon both local and state appropriations. Unfortunately, as the ANOVA tests conclusively revealed, local appropriations are not as widely available to small- and medium-rural community colleges. And, as Mortenson's analysis revealed in Chapter Two, state appropriations per student

Figure 1

Percentage Change in Sources of Revenue for Rural Community Colleges and All Community Colleges for Fiscal Years 1992-93 and 1996-97 (in constant 1997 dollars)



Source: Mortenson, T. G. (1998, February). Competition for State Appropriations in FY1998. Postsecondary Education OPPORTUNITY, 68, p 18.

FTE adjusted for inflation have not recovered in any of the two recessions that followed the end of the Vietnam War in 1975.[8] A further concern about the financial condition of rural community colleges is that over 60 percent of E&G expenditures pertained directly to labor costs. This, combined with the added burden of plant operations and maintenance costs, capital expenditures, and rising demands for new technology brought on by the unfolding electronic information age indicate the seriousness of the financial decline experienced by rural community colleges. The negative direction of their fiscal health in recent years raises deep concern regarding their long-term financial viability without an increase in federal and state support.

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[8] Dr. Mortenson measures states' investment in higher education as the appropriation of state tax funds for operating expenses of higher education per $1,000 of personal income and has revealed a steady decline in state support from high of $11.22 in 1979 to $7.82 in fiscal year 1999 (1998 November, p. 1).

The relationship between revenue sources is complex. Certainly, small- and medium-sized rural community colleges are much more sensitive to the ebbs and flows in states' general revenue funds. This is particularly true with small- and medium-sized rural campuses which receive only 4 percent and 8 percent, respectively, of their total operating funding from local taxes compared to 13 percent at large rural campuses and 15.5 percent at suburban and urban community colleges. The revenue patterns reflected in Tables 10 and 11 confirm that community colleges play a major role in workforce development, and that rural community colleges play a special role for which there is no other substitute. State policy needs to recognize this special role, as per the works of Rosenfeld (1992), Katsinas and Miller (1998), and Killacky and Valadez (1995). As funding from the federal government is reduced, states' roles will likely become more important. The same higher costs associated with providing access in rural areas append to workforce development programs.

5. Using averages that compare selected revenues per student FTE and expenditures per student FTE for publicly controlled community colleges does not represent fairly publicly controlled rural community colleges.

Table 14 shows that of the 36 ANOVA tests performed on six revenue categories, 17 (48 percent) revealed a significant difference existed among the means indicating certain revenues per FTE were not statistically equal. Table 11, on page 121 above, indicated that, together, state appropriations per FTE, local appropriations per FTE, and tuition and fees per FTE totaled approximately 70 percent of the total revenues received by both publicly controlled rural community colleges and the universe of publicly controlled community colleges. Of the 18 ANOVA tests performed on these three sources of revenue, nearly 75 percent reported a significant difference existed among the means, indicating they were *not* statistically equal. Of the 18 ANOVA tests performed on the three expenditure categories tested -- E&G expenditures per FTE, auxiliary enterprises expenditures per FTE, and E&G expenditures per FTE-employee compensation, 14, or 78 percent, showed that the means were *not* statistically equal. All in all, the significant statistical differences reflected by the outcomes of the ANOVA tests indicated that using averages to report and/or compare the selected revenues and expenditures per student FTE for publicly controlled community colleges does not represent fairly publicly controlled rural community colleges.

Conclusions

1. The financial institutional capacities of all types of publicly controlled rural community colleges are significantly different and more negative compared to the universe of publicly controlled community colleges.

The major conclusion of this study is that institutional capacity of each type of publicly controlled rural community college is significantly different than the universe of all publicly controlled community colleges, which includes urban and suburban community colleges. This study found that small-, medium-, and large-sized public rural community colleges had revenue and expenditure patterns significantly different from the averages of all publicly controlled community colleges. Given the smaller average budget size, the general lack of unrestricted funds, and the inability to access non-traditional revenue streams when compared to their suburban and urban community college counterparts, it is clear that these institutions are severely challenged. They are challenged to provide access to serve both traditional aged students and the lifelong learning needs of older adults. And they are challenged to meet the ever-increasing dependency on higher education to meet or generate the economic growth and development expectations of state policy-makers. That rural community colleges would see their state appropriations per student FTE decline, adjusted for inflation, during five of the best years of economic performance by the American economy at any time since World War II, bodes ill for the future, particularly if economic prosperity should turn sour, as someday it likely will. Further, these institutions will be placed at risk by states that choose during times of strong state budgets, as is the current situation, to give away their budget surpluses in the form of tax cuts or other spending priorities while leaving the seriously weakened operating budget situation of their rural community colleges unaddressed.

2. While many states desire community colleges to be active players in their workforce development and economic development initiatives, the financial capacity of the rural community colleges suggests a much more limited role will be played. This particular challenge is severe for the small- and medium-sized rural community college because of their lack of access to alternative revenue streams.

Following the economic disruption of the early 1980s, and with the accelerating demands of the information age coinciding with the rise of the personal computer revolution of the 1990s, the workforce training provided by community colleges has helped America transition from low-skilled manufacturing jobs to more technical manufacturing skills and service industries (Katsinas and Lacey, 1989; Katsinas, 1994a; Katsinas, 1994b; Baker and et al., 1994). If technological changes accelerate in coming years, the ability of rural America to remain competitive in an electronic information age may rest upon the institutional capacity of its community colleges. This is particularly true for the rural areas served by small- and medium-sized rural community colleges, which represent the preponderance of institutions in the most severely economically depressed regions of this nation -- Appalachia, the lower Mississippi Valley, the south Texas border, the Four Corners region of the southwest, and the High Plains served by Tribal Colleges. State and federal policy-makers, to the fullest extent possible, should develop policies and implement programs to assure that this does not occur.

It is evident from the study's data that the financial health of rural community colleges has become the end rather than the means for achieving workforce training and economic development efforts of rural communities. The fact that rural community colleges have been underfunded and tied to the swings of state budget cycles provides added problems for their already insufficient unrestricted funds. Even though the financing of community colleges works this way, it does not necessarily reflect poorly on the legislative process or politicians and other leaders, who have operated ethically and with the best intentions. Instead, the need is to develop and achieve a cooperative approach to funding community colleges, particularly rural community colleges. This means an extensive approach where conditions recognize partnerships through serving the needs of students and rural communities while limiting the threat of funding decisions based upon myths and inadequate financial information.

3. Using the Katsinas and Lacey classification scheme for rural community colleges showed that significant differences exist among and between the financial capacity of publicly-controlled community colleges based upon geography.

In analyzing IPEDS data using financial data adjusted for inflation, and through ANOVA testing, significant statistical differences were revealed in the existing per student FTE revenue and expenditure patterns between rural community colleges compared to the universe of all publicly controlled community colleges in the United States. This study further found that significant statistical differences existed in the revenue and expenditure patterns among and between publicly controlled small-sized, medium-sized, and large-sized rural community colleges. The analysis in Chapter Four and the findings above support the proposition that, in the past five years, funding schemes to deliver federal and state aid were inadequate and did not provide even a modest increase in investment. Additionally, other revenue streams, most notably local appropriations and tuition and fees, could not ameliorate the extant inequalities in total per student FTE revenues. This quite naturally meant lower per student FTE expenditures, and over time, would indicate that rural community colleges are less well positioned to provide needed services. This would suggest that states, and the federal government as well, should reexamine their role in assuring equality of postsecondary educational opportunity as related to rural America.

The relatively minuscule positive movement in the net operating budgets since

1992-93 should not be allowed to justify the acceptance of false economies. The Katsinas and Lacey (in press) classification system clearly captures the advantage of the moment by offering an identifiable way to reshape decision-making for rural community colleges and increase the equity and efficiency of federal and state investments and funding decisions to support public community colleges.

The late Howard R. Bowen wrote in 1980 about the revenue and cost behaviors of colleges and universities, and proposed a "revenue theory of cost" as a reasonable explanation to account for the rising costs in higher education. He observed that institutions would raise as much revenue as possible to support their valued services. In doing so, the only limit on institutional costs was the amount of revenue available and the constraint of having a balanced budget. Moreover, the theory seems to explain the financial dimensions and pressures that are being experienced today by the public sector of higher education. To illustrate, Table 10 indicated that state appropriations per student FTE for publicly controlled community colleges either declined sharply or showed a very modest growth between the fiscal years 1992-93 and 1996-97. Lower state appropriations has been a key constraint with available revenues, which has caused financial stress and forced institutions to raise their tuition and fees and justify seeking new lines of revenue.

Honeyman, Williamson, and Wattenbarger (1991) surveyed the State Higher Education Executive Officers (SHEEO) to learn more about the financial problems facing community colleges. They found that the most frequently cited problems by the respondents included underfunding, inadequate faculty salaries, and limited state resources. Additionally, their survey noted new issues on the horizon causing financial concerns including capital outlays and renovation needs, funds for minority student support, and an inadequate property and sales tax base to support operating costs. Interestingly, they reported that "no respondent indicated they were experiencing enrollment problems" (p. 41).

In addition, the result of seeing no significant statistical differences in at least some of the ANOVA tests performed in Chapter Four among the small-, medium-, large-sized publicly controlled rural community colleges and the universes of public community colleges might falsely set some policy analysts at ease. That is, the assumed interpretation in those particular cases where there was no significant difference suggests that when the universe of community colleges is lumped together and reported under one classification, as reported today, there also are no significant differences in the financial patterns of revenues and expenditures at rural, urban, and suburban community colleges. However, this study's findings clearly revealed significant statistical differences existed among and between the revenue and expenditure patterns per student FTE based upon the different rural classifications of community colleges. This study provided conclusive statistical evidence that reporting financial results lumped under one classification is inadequate and misleading. From a public policy standpoint, the long-term and overused dependency on one classification for all community colleges has likely led policy-makers to reach inaccurate conclusions and make honest faulty decisions about inherent institutional capacities and financial needs.

Again, the late Howard Bowen often cited the "revenue theory of cost" as the reason for the rising cost of higher education. In other words, his belief was that the only constraints on costs were the amount of revenue and the need for fiscal management and a balanced budget. Applying his theory to today's financial events at rural community colleges suggests that under constant cost pressures, short-run revenue declines in such line items as state and local appropriations will result in rising financial stress. With total E&G costs residing above 90 percent of total current fund costs and the financial position of rural institutions further complicated by having employee compensation represent nearly 60 percent of total E&G costs, it is clear that the nation's rural community colleges have had very limited flexibility and few discretionary dollars. Rubin and Autry (1998) commented that "all rural community colleges have the potential to be catalysts for economic renewal . . . but most states do not fund their community colleges to play this role" (p. 1). The plain and simple truth is if states desire healthy rural communities then they need to maintain the institutional capacity and financial viability of rural community colleges. This is particularly true if they are to play a leading role in retaining and recruiting industries that increasingly rely upon technically well-trained workers (Katsinas and Miller, 1998).

Table 15 shows the premium placed on a given community's reinvestment programs. With minimum risk, it could be estimated that a rural community college's resources would likely increase in proportion to a local community's enrichment as well as investment over time. In an earlier era, during the 1920s and 1930s, rural municipalities funded their junior colleges based to a good extent on their ability to tax nearby extractive raw materials. Seven municipal junior colleges sprung up as extensions of high schools in the 1920s, for example, in Minnesota's Iron Range (Koos, 1924). However, the analysis reflected in Figure 1 revealed a much lower if not disappointing return to rural community colleges, as measured by local tax appropriations. It is highly likely that the capacity of poor counties in regions such as Appalachia simply do not possess the ability to tax themselves; put differently, even if local property taxes are raised significantly in the poorer regions of rural America, little in the way of total revenue would be generated. This underscores the gap between appearance and reality, and raises deep concern over the continued use of a single classification to lump community colleges when states measure and evaluate the revenue and expenditure patterns and behaviors of their rural community colleges. Cohen and Brawer (1996) argue that size is the major difference among and between community colleges. This study builds upon that notion, and supports the proposition that geography is important as well. Unfortunately, the application of present methods used to identify and measure performance criteria of rural community colleges all too often have misled or skewed the leverage exercised by political officials and business leaders alike to use these institutions in the most effective manner to provide access and economic development.

Recommendations for Policy with a Special Emphasis on the States

1. Geography matters. Recognize higher per student FTE costs at rural community colleges as a matter of state policy.

The bulk of funding that rural community colleges receive comes from state appropriations. States with small-sized and medium-sized rural community colleges should implement policies that provide higher per student FTE allocations to these institutions to assist community colleges in meeting the higher costs associated with simply opening the doors. The smaller the institution, the more it will lack the ability to spread or allocate costs and investments to effectuate economies of scale. The more disadvantaged the population that the college happens to serve, the more resources will be required to "reach out" to serve that population. They should recognize the higher costs of operating rural community colleges and the lower unrestricted funds budgets of these institutions which translate into lower total funding for new programs and initiatives in their funding policies. State policies should specifically recognize the need for rural community colleges to have the capacity to deliver today's high technology training in their funding mechanisms. Put differently, the states, which created systems of community colleges to extend geographic access to the general citizenry in the 1950s and 1960s, now should focus attention on improving the relative equality of programmatic access, and they should pay for it.

2. Poverty matters. Recognize the need to equalize property taxes across all regions of the state as a matter of state policy.

The governments of the states have a particularly important role to play in assuring equity of opportunity. Rural community colleges that have lower access to healthy local taxing capacities are particularly challenged. All rural community colleges are challenged to keep their tuition and fees as low as possible, given the decline in the purchasing power of federal need-based student aid since 1980, and the higher non-tuition and fees related costs (particularly transportation costs) pertaining to attending postsecondary institutions in rural regions of America. It is recommended that community colleges receive a portion of their funding from local property taxes. It is encouraged that states enact an equalization plan that will make provisions in state funding for inequitable amounts of local tax revenue per student. In order for this provision to be equitable, consideration must be given to the cost of programs, local taxing efforts, and tuition assessment efforts. This measure would allow for rural institutions to meet minimal tuition and fee thresholds, and is simply a matter of equity and fairness.

3. Size matters. State investment in public higher education should recognize the higher costs associated with providing expensive "high tech" academic programs at their rural community colleges.

In 1991, Halstead commented that no factor is more important to education costs than enrollment size and the economies attributable to an institution's operating scale. Halstead wrote, "large colleges and universities are simply less expensive to operate than smaller ones" (pp. 84-5). "Fixed" costs provide a certain base level of expenditures which generally move in ranges of student enrollments, allowing for instruction to be more cost efficient with optimal class sizes. Although rural colleges, and for that matter, small rural universities provide great advantages to communities, most notably the extension of geographic access to areas of limited populations, Halstead suggested the costs at small colleges with fewer than 2,500 students may be 50 percent higher than large institutions, simply because of size (p. 85). The data analyzed in this study reflected in Table 12 strongly support Halstead's assertion, made also by Bowen (1981) and Katsinas (1996), indicating that for fiscal year 1996-97, total E&G expenditures per FTE at small rural campuses equaled $9,755 compared to medium-and large-sized rural community colleges of $8,552 and $7,821, respectively, and the universe of publicly controlled community colleges, $7,682. Katsinas (1996) also argued that while community colleges share a commitment to open access, comprehensiveness, and responsiveness to local needs, they are a diverse group of institutions. This diversity is reflected in geography, demography, governance, and institutional size.

States' underfunding for public community colleges has not kept pace with their growth and development, and has limited their ability to ameliorate the effects of high tuition. Coherent and comprehensive state funding policies that include tuition policy are needed that recognize size while determining the operating support of rural community colleges. In doing so, state funding formulas must be altered to recognize that institutional size directly impacts the nature of how economies of scale work. The funding mechanism must be deliberate and wisely devised with measures taken to abolish inefficiencies and the financial stress that have been placed upon rural institutions, especially as related to operating high cost, high wage producing academic programs.

4. Economies of scale matter. States should fund base operations of their rural community colleges before using student FTE formula funding.

State funding policies should eliminate the disparity in rural community college enrollment costs. State policies must provide additional resources for rural community colleges by allotting a foundation level, in addition to the operating funds distributed typically by student FTE formula. Other reasonable alternatives for providing necessary levels of funding might include developing categorical or block grant funding or seek further modifications to funding formulas so that state appropriations are allocated on a basis of actual costs for providing the services of approved programs, both credit and non-credit. This is justified because of the significantly higher unit cost per FTE at rural community colleges found in this study.

5. Tuition matters: State policy should be to keep tuition low at rural community colleges.

In recent years, the unpredictable nature of tuition increases undoubtedly has been disconcerting to students and their parents. The variations in tuition patterns has been made worse by the absence of any clearly stated public policies. It is recommended that sensible and predictable policies be developed so that students and parents can better estimate the financial impact, and plan for ways to meet those expenses.

Specifically, states' tuition policy for rural community colleges should be kept low and from becoming a financial barrier that prevents low-income people from furthering their education. State tuition policies should not be pegged to the maximum Federal Pell Grant as was argued by Breneman and Nelson (1981) nearly two decades ago in their Brookings Institution book, Financing Community Colleges: An Economic Perspective. Their point -- that equity for disadvantaged students would be provided by ever-expanding federal student aid no longer requiring states to provide low or no tuition -- has been made moot by 20 years of experience.

A well-known fact is that students who attend community colleges have the lowest income profiles, and simply do not have the means to fully afford the total debt burden of a postsecondary education. Additionally, students attending rural community colleges will generally pay higher out of pocket expenses or non-academic costs than their counterparts attending urban and suburban institutions. These higher costs specifically include daily transportation expenses as well as daycare expenditures. For these reasons, it is recommended that state supported rural community colleges be adequately funded so open access can be maintained while tuition and fees remain low, so that student aid can cover the higher non-tuition related expenses associated with attendance at a rural community college.

Recommendations for Further Study

1. The federal government should play its historical role of ameliorating disparities/inequities, as they have done with executive orders to help historically black colleges and universities.

The federal government, whose initial involvement in the 1960s New Frontier and Great Society programs was spurred by concerns of promoting equity and fairness, should specifically consider rural dispersion policies that would provide special points on funded grant activities for institutions that serve low density areas of the nation or, alternatively, counties of the nation with extremely high poverty rates. Such dispersion policies could be added via regulatory changes or by statute as a matter of course in grant programs funded by federal agencies including the National Endowments for the Arts and Humanities, various U.S. Department of Education grant competition programs (Title III Strengthening Developing Institutions, TRIO, International Education, Libraries, and FIPSE), as well as in competitive grant programs delivered by the Departments of Labor, Health and Human Services, Commerce, and Agriculture. The time has come for federal and state policy-makers to actually recognize in policy what they know to be true anecdotally and now, empirically.

2. Further studies of institutional capacity and financial position

It is recommended that future research concerning institutional capacity and the financial positions of public and private community colleges be conducted through the use of the Katsinas and Lacey (in press) classification system for community colleges. Community colleges are under pressure from governors and legislators to heighten their missions in community involvement since they are seen as cogs in state economies. However, there is a significant lack of fundamental knowledge about the use of financial information and decision making at the local, state, and national levels concerning financing of community colleges. For example, the data from this study revealed the tight allotment of state budget support for higher education combined with the expansion of postsecondary missions have produced a weaker financial position for community colleges. Meanwhile, the state and federal economic programs that helped revive and got the nation's economy moving again have yet to bring the same consequential relief to public higher education and, in particular, rural community colleges.

For these reasons, this is an opportunity to draw upon and coordinate efforts using many different resources that would provide a breadth of services needed for such a comprehensive review. The leadership of such a review process must be administered through the SHEEOs, and allowance given for its execution and direction using the States' Higher Education Financial Officers (SHEFO). This framework would provide for cognizant links to various levels of direct and indirect involvement of important stakeholders such as governors, legislators, trustees, college presidents, and other influential decision-makers.

In addition, financial support for this initiative is encouraged to come from both state and federal agencies who, ultimately, would provide a supporting role in the project's coordination. The establishment of such research raises a number of trade-offs. For example, the direction of funding reform for rural community colleges could result in additional programmatic components that would need to be coordinated at local, state, and federal levels. In fact, such proposals that emerge would need to be "certified" by postsecondary providers as well as establishing a means to monitor the process and ensure high quality services are delivered. Other organizations that may show an interest in funding such a project include non-profit groups such as the National Center for Public Policy and Higher Education or the American Association of Community Colleges, and private foundations such as Kellogg and Lilly who have supported many important avenues for advancing the efforts of higher education, and Ford with its generous grants for rural community college initiatives.

3. Further studies of plant funding and facilities maintenance

It is recommended that future research be performed in areas of plant funding and facilities' maintenance. First, Table 12 on page 122 showed expenditures for plant operations had declined between fiscal years 1992-93 and 1996-97. Generally, decreased spending in this area is generally caused by a gap between available resources or savings and investment due to the lack of institutional capacity to meet all needs. The tendency is for substituting or deferring maintenance practices as a way to balance the budget. Second, a significant number of community colleges were developed and built during the late 1950s and 1960s as part of higher education's move to become a mass system. Nationally, this means that a majority of the community college plants and facilities will require major repairs and renovation near the same time period. This association indicates a large potential for a strong increase in higher education capital expenditures which would have a significant effect on state and local and federal budgets. Third, a weak capacity and less favorable conditions for investment exposes rural community colleges to declining productivity of rural campuses.

Until recently, public higher education has relied largely upon state budgets to provide the necessary funding for capital projects and renovations. After the 1991-92 recession, states suffered from budget deficits and struggled with high interest rates and sluggish private investments. For these reasons many state lawmakers modified funding formulas for capital expenditures. That is, many states moved to requiring campuses to provide matching funds or receive lower subsidies as a manner for sharing in the cost, slowing capital outlays, and/or making choices. Matching funds come from existing internal reserves or from the financial markets, which places rural campuses at a widening disadvantage for two reasons. First, rural community colleges do not have adequate cash reserves on hand to fund even small matching portions of capital projects. Second, even though financial markets and institutions have funneled substantial funds to the higher education industry, most rural community colleges cannot afford the overwhelming burden of servicing debt. In effect, today's cuts are leaving rural institutions squeezed for money in the future. Instead, it is urged that today's state budget surpluses be used to underwrite and resolve this imbalance and provide the strong capacity for achieving appropriate reinvestment in plants and facilities maintenance.

Coupled to this study should be a survey of the technological infrastructures and needs of rural community colleges. Both state and federal technological grants should be formulated on a competitive basis ensuring that rural campuses determine innovative ways to using technology for improving access and productivity while restructuring academic work. Improvements in technology practices will induce a vast majority of rural campuses to revamp their cost structures and gain efficiencies while serving their clientele.

The primary responsibility for this study must come from the SHEEOs with implementation by the SHEFOs. Those interested in the results would include governors, legislators, trustees, college presidents, and business and community leaders. Funding for the study should come from a mix of state and federal resources and private institutes such as the Rockefeller and Sloan Foundation and other interested non-profit groups.

4. Further studies by state and geographical regions

It is recommended that future research using the Katsinas and Lacey (in press) topology for community colleges be conducted on a state and regional basis. Such studies will assist local community leaders and state and federal officials to be better informed and understand the appropriate needs and requirements for keeping community colleges financially viable. These studies will illustrate that the right mix of states policies that can positively affect the composition of access and scope of quality. The outcomes of such studies will begin to reduce the existing gap between limited unrestricted operating funds and investment in the multiple missions of rural community colleges.

Past studies by Bowen (1980) and Cohen and Brawer (1996) have reported that size and type of postsecondary institution have affected cost behaviors. This study provided empirical evidence that geographical setting is another important dimension. A practical consideration from such a study is that additional comparative information on different educational systems would reveal more evidence about their performance and their overall financial health. The higher level of knowledge about the composition of community colleges provides a higher opportunity for more informed decisions, sounder policies, and other favorable conditions to be coupled with the nation's system of community colleges.

In addition, Breneman (1993) stated "an essential function that the federal government provides for higher education is to collect and make available statistical information on institutions and students for research and policy purposes" (p. 23). However, it is increasingly important to use the information available to investigate community colleges state by state and assess the impact and consequence of state and local tax capacities and policies toward provision of equitable funding of higher education. It is recommended that studies such as these be pursued to allow for additional understanding of the financing patterns for all community colleges - rural, suburban, and urban.

These studies should be conducted by the researchers who must share their findings with local, state and federal agencies, and SHEEOs. The sharing of data will allow for reaction periods prior to the setting of new policies or alterations to existing policies. Because of the importance and strong likelihood for policy implications, funding for these research projects should come from both public and private sources such as the Department of Education or the Education Commission of the States, and private non-profit groups.

5. Further studies of program investment and economic development

One of the original hopes of the researcher was to identify indicators which could be used to evaluate how effective community colleges are in economic development through the responsibilities of providing workforce development, training, and planning labor market demand. It was not possible to draw any real conclusions within the confines of the data under study. Further study using a cost/benefits analysis performed by examining revenue generated by specific programs, the cost to produce the programs, and the return on the investment to the community and the community college are needed.

State officials are paying closer attention to their investment in education. They are beginning to recognize the tie between higher earnings and educational attainment, and seeing the need to support a system of lifelong learning. Additionally, the benefits offered by such research efforts would be widespread and provide greater enhancement to existing investment conditions. These studies should be conducted by independent researchers with input and data sharing from state, local, and federal agencies. Funding for such research efforts should come from both public and private sources as both are benefactors.

6. Further studies of non-traditional sources of revenue

It is recommended that additional studies be performed on non-traditional sources of revenue. The financing patterns of higher education are in transition. No longer can publicly controlled community colleges afford to rely as heavily upon traditional sources of revenue such as state and local appropriations. Non-traditional revenue sources have actively attracted community college leaders, as trustees, presidents, and administrators search for new alternatives to balance institutional budgets.

In addition, many policy-makers believe that cost shifts made to state budgets such as reducing direct support for public higher education operations and replacing support through workforce development programs on college campuses were budget neutral. The fact is redirecting primary support dollars served only to briefly disguise additional erosion and sustained weaker institutional capacities while lessening access and reducing productivity on rural campuses. Further study should help in identifying the "real" cost behaviors of generating these nontraditional funds despite their originating source. Accordingly, such a research would determine ways to better control declines or cost overruns in new lines of service and preventing revenue shortfalls or related declines to income.

This project should be conducted by researchers who can share their findings with SHEEOs and other interested state and local agencies, Department of Education, college presidents and administrators, trustees, and community leaders. Funding for this project should come from state and federal agencies and/or private foundations.

7. Consider further refinements in the Katsinas and Lacey classification scheme.

The Katsinas and Lacey classification scheme is based upon two principles. First is the geographical location of the community college. Institutions located within the 100 largest metropolitan areas are considered urban or suburban. Institutions lying outside of these regions are considered rural. Second, institutions are broken down into categories of small, medium, and large based upon enrollment or headcount. This study used the Katsinas and Lacey classification scheme for determining small-, medium-, and large-sized rural institutions, which was based upon student headcount. To compare institutions using IPEDS, this study used the FTE multiplier developed by Department of Education as a measure of revenues and expenditures per student unit. The quandary is a rural community college may move from medium-sized by the Katsinas and Lacey classification scheme which is by headcount to small-sized based on FTE. Further study is needed for determining whether FTE rather than headcount is a better measurement for distinguishing between small-, medium-, and large-sized rural community colleges.

8. The Department of Education should make the IPEDS data base more user-friendly.

It is recommended that NCES make the IPEDS data base more user-friendly. An essential function for federal and state agencies is to collect and make available demographic, financial, student, faculty, and other statistical information about institutions for purposes of research, benchmarking, and policy-making. However, there are inconsistencies in downloading IPEDS data from the Internet. The merging of IPEDS data obtained from separate modules is difficult, particularly if those data are from different years, as was the case in this study.

Currently, NCES has requested advice from postsecondary institutions on how to make IPEDS information more useful in their gathering of appropriate information. This process would likely increase its use and support research efforts since more informed policy decisions clearly depend on the steady flow of high quality information. The centerpiece for funding such research should come from federal resources. NCES should convene a special group of community college researchers for an invitational conference on this specific topic.

9. Other statistical tools

It is recommended that other statistical tools be used to support additional findings on the impact of policy decisions on all community colleges their behaviors. Such statistical techniques might include regression analyses of revenue and expenditure types and noting differences and relationships between the different community colleges. Another statistical technique that would provide additional insight to the weakness or strength of existing relationships between items of revenue and expenditures is correlation analysis. The use of additional statistical techniques would help in clarifying information or events by sorting out generalizations and related inferences often made about community colleges - rural, suburban, and urban. A majority of the support for such research projects should come from non-profit groups.

Concluding Remarks

This study has resulted in the creation of the very first comprehensive data base that covers the revenues and expenditures of publicly controlled rural community colleges using the community college classification system developed by Katsinas and Lacey (in press). The information from this study and its data base may help to inform policy-makers, on local, state, and national levels, regarding the financial status of rural community colleges, thereby supporting the formulation and evaluation of national and state higher education policies. However, the data base is not perfect. It does not assess the stage a rural community college is at in terms of a more qualitative or indirect nature. In other words, the data base does not look at other variables such as programs offered by rural community colleges or certificates and diplomas granted by these campuses, which offers a thorough understanding of their mission and purpose.

The comparative analysis that has been provided in this study offers a number of important and new insights in the institutional capacity and financial position of rural community colleges. The next logical step would be the design and testing of the possible theories that can provide in-depth explanations of the differences in higher education expenditures that were found in this study.

In tackling the challenge of this kind by starting from the common-sense proposition that for effective and efficient investment decision making--over-investment or under-investment--both market and non-market conditions depend mainly on the availability of good information. Without good information it is impossible to make effective investment decisions about the content or the quality except by chance. It is apparent that based on the present financial condition there appear to be at least four alternatives available to rural community colleges, other factors remaining constant, that can be characterized as reactive and adaptive. One strategy would be to *do the same with less*. This is a short-term approach where institutions attempt to perform and provide the same amount of service but with less funding. Over time, the scope and quality of their services begin to diminish unless steps are taken to reduce enrollment or budget cuts are initiated. A second option is to *do more with less*. Again, this is a short-term response since productivity and efficiency have legitimate capacities and increased resources are needed to meet demand and direct and indirect costs. The approach allows for increases in enrollment along with other activities while having flat or reduced funding from traditional sources. Ultimately, this strategy positions an institution for divestiture of excessive and unprofitable programs and attracts changes in infrastructure and missions. A third option is to *do less with less*. This option is more long-term since it requires an organization to make tough decisions and sharpen its mission by strategically "rightsizing" with minimal effect on quality. The drawbacks are that enrollment is reduced and access and choice to those students who may not have another opportunity to obtain a college education is limited. Finally, a fourth alternative is to *do more with more*. This strategy allows for long-term thinking and granting of adequate funding for institutions to retool and reshape their missions and become more responsive to demands of employers and the public. The approach supports increasing mission responsibilities in areas of education, public service, and research for both two-year and four-year public campuses. In particular, public community colleges would have ample opportunity to invest in costly specialization programs for meeting the demands of employers and promoting their involvement in community revitalization projects and economic development programs.

The present system of financing public higher education is complex. The equation includes financing from federal, state, and local taxes; endowment income, gifts from individuals, foundations, and corporations; tuitions from earnings of students spouses, parents, relatives; receipts from sale of products; and various forms of loans to institutions and students. Even today the nation continues to struggle in a great debate about the future of higher education, especially what higher education is contributing to American society and whether the results are worth the cost. For example, in 1959, at the 37th annual meeting of the Association of Governing Boards of State Universities and Allied Institutions, Dr. Novice G. Fawcett, President, Ohio State University, in his speech entitled "Are We Spending Enough for Higher Education" stated:

> One might also point to the magnificent highways in which the 48 states of our affluent society in 1957 invested $35.79 per capita in contrast to the state institutions of higher learning in which they invested $11.76. Let me say at this point that no one in education questions the social or economic importance of good highways, but many are recalling with some uneasiness the warning of Alfred North Whitehead: 'The nation which does not value trained intelligence is doomed.' And it is prolonged under-investment in our high roads to trained intelligence which has led to their acute need for increased financial support today. My optimism, then, is based on enlightened public opinion and a serious public consciousness of our fundamental problems. (pp. 38-9)

The U.S. Bureau of the Census finance report of 1994 expenditures showed state and local spending per capita totaled $349 for higher education and $277 for highways (1997, p. 300). From a different point of view, one could interpret that today's economic expansion is the best thing that has happened to economic development efforts since interstate highways. Yet, a reasonable question that can be left open for public debate is, what should be the amount of spending per capita for postsecondary education?

As this study started with the thoughts and views of Howard Bowen and his "revenue theory of costs," so shall it end with his indictment. In summarizing his theory, Bowen (1980a) wrote "each institution raises all the money it can" and "each institution spends all it raises." He added that "the duty of setting limits thus falls, by default, upon those who provide the money, mostly legislators and students and their families" (p. 20). Bowen (1980a) concluded that "it is, of course, the political process that we usually depend upon to work out the flow of funds to various fields according to the equi-marginal principle" (p. 21). Finally, this study supports the notion of how critically valuable it is to have accurate data for making sound policy decisions.

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APPENDIX - ANOVA Trials

Introduction

The ANOVA single factor statistical method was used in this study since it is capable of testing a hypothesis about several means. The ANOVA technique tests the hypothesis against the population means to determine whether the population means are statistically equal within a predetermined level of confidence. While testing the populations' means, ANOVA calculates the amount of difference among the mean values to determine the amount of variability. In doing so, a p-value is calculated and provides a basis for accepting or rejecting the hypothesis that the means are statistically equal. That is, the calculated p-value is compared to a predetermined confidence level or alpha. If the p-value is greater than alpha, the hypothesis that all means are statistically equal is accepted. If the p-value is less than alpha, the hypothesis is rejected since at least one of the means is not statistically equal.

It is helpful to understand what is meant by the ANOVA test result of "significant difference" or "no significant difference." For example, assume the ANOVA was utilized to ascertain whether the mean of instruction costs per student FTE for Midwest public universities and the mean of instruction costs per student FTE for the universe of publicly controlled universities were statistically equal within a predetermined alpha level. The alpha would be set to .05, a common setting, indicating that a reciprocal level of confidence was 95 percent. ANOVA would then determine the amount of variability between the means of the different instruction costs per student FTE, by calculating a p-value to provide a basis for making a decision whether to accept or reject the hypothesis that the means are statistically equal. That is, if the ANOVA trial calculated p-value equaled .15, it would be greater than the alpha of .05, indicating no significant statistical difference within the level of confidence between the means of instruction costs per student FTE at publicly controlled universities. Therefore, the hypothesis would be accepted that the means of instructional costs per student FTE are statistically equal. On the other hand, if the calculated p-value is less than the .05 alpha, then at least one of the means of instructional costs per student FTE is significantly different and falls outside the predetermined level of confidence. In this case, the hypothesis that the means are statistically equal would be rejected.

It is important for this analysis to note that the U.S. Department of Education's National Center for Education Statistics (NCES) annually reports financial data on postsecondary institutions in its Digest of Education Statistics and The Condition of Education. For community colleges, NCES reports financial data using the Carnegie classification for "Associate of Arts" granting institutions. NCES lumps the financial results of community colleges and reports the data as either summations or averages. Depending upon the report, NCES data may be separated as national, state-by-state, or publicly- and privately-controlled institutions. Simply put, neither NCES nor any other reporting agency(s) has separated the financial information of community colleges into dimensions such as rural, urban, or suburban or small-, medium, and large-sized as this study has done employing a meaningful classification scheme for community colleges such as that developed by Katsinas and Lacey (in press). An obvious question, then, is whether one classification represents fairly community colleges or obscures important differences between community colleges.

From the brief example given above using instructional costs per student FTE, the implication of rejecting the hypothesis meant a significant difference existed between the averages of instructional costs per student FTE of publicly controlled Midwestern universities and the universe of publicly controlled universities. The inference from this example would be that reporting the national average of instructional costs per student FTE for publicly controlled universities *does not* provide a fair representation of the instructional costs per student FTE at public Midwestern universities. Depending upon how the financial information is used, certain summations could be misleading and inadvertently cause policy-makers, state regents, trustees, presidents, administrators, researchers, and others users of the financial data to reach erroneous conclusions or make honest faults or less informed decisions.

For this reason, the results of applying the ANOVA statistical method to the revenue and expenditure variables of publicly controlled community colleges are critical to this study. The following sections describe the results of the ANOVA trials performed on the revenue and expenditure categories for publicly controlled small-, medium-, and large-sized rural community colleges and the universes of publicly controlled community colleges for fiscal years 1992-93 and 1996-97.

Analysis of ANOVA Trials

State Appropriations

State appropriations is the largest single source of funds available for public institutions of higher education and it provides for the general operating activities. Zumeta (1995) pointed out that "higher education is the largest area of state funding that is not constitutionally mandated . . . as a result, it is readily cut or held to small increases" (p. 73). Additionally, there is a large amount of diversity across state policies in financing publicly controlled community colleges. For example, Table 10 shows the average state appropriations per student FTE in fiscal year 1992-93 ranged from a high of $5,305, or 49.2 percent of total revenue per student FTE at small rurals, to a low of $2,871 or 37.9 percent of total revenue per student FTE at large rurals. Furthermore, in fiscal year 1996-97, the amount of state appropriations per student FTE at small rurals fell by $742 or 13 percent, to $4,563 compared to mild increases in state appropriations per student FTE at medium rural institutions of 3 percent and at large rurals of 9.6 percent.

The core of state appropriations formulas are generally driven by the number of FTEs in a state's higher education system. Campbell, Laverty, and Sayles (1996) pointed out that this poses a problem for community colleges as significant portions of their missions, such as continuing education and economic development, are not associated with enrollment or credit hours (p. 175). An additional paradigm is the current movement to productivity formulas, as demonstrated by several states adopting formulas that provide accountability and performance measures (McKeown, 1996b, pp.30-1).

The ANOVA analyses will determine if there is a least one significant statistical difference in the averages of state appropriations per student FTE reported among the three rural classifications of community colleges and the universes - fiscals year 1992-93 and 1996-97 - of publicly controlled community colleges.

Parts I and II of Table 16 provide a summary of the ANOVA analysis performed on state appropriations per student FTE for fiscal year 1992-93. Part I indicates that a significant difference does exist among the means of small rurals of $5,595, medium rurals of $3,937, and large rurals of $2,953 since the trial's calculated p-value of .000000 was well below the predetermined alpha of .05. However, Part II of the ANOVA analysis indicated no significant difference existed among the averages of state appropriations per FTE for the different rural classifications and the universe of publicly controlled community colleges. The calculated p-value equaled .796175 and was above the .05 alpha factor.

As a result, the ANOVA test for Part I determined there was a significant difference among the means of state appropriations per student FTE of small-, medium-, and large-sized rural community colleges in fiscal year 1992-93 and that the means were not statistically equal. Part II of the ANOVA trial determined that reporting fiscal year 1992-93 state appropriations per student FTE for community colleges as a national average *does* fairly represent rural community colleges, since the means were statistically equal.

Parts I and II of Table 17 summarize the ANOVA application performed on the means of state appropriations per student FTE for the small, medium, and large rural classifications and the universe of publicly controlled community colleges for fiscal year 1996-97. Part I showed a calculated p-value of .000000 indicating that a highly significant difference existed among the averages of state appropriations per student FTE with small rurals of $4,489, medium rurals of $3,955, and large rurals of $3,264. Additionally, the

Table 16
Comparison of the Means of State Appropriations per Student FTE for Fiscal Year 1992-93

(adjusted for inflation, constant 1997 dollars)

Groups	Colleges	Average	Variance	P-value	Significant
Part I					
Small	88	$5,595	$12,340,066		
Medium	219	$3,937	$7,567,841		
Large	254	$2,953	$1,458,311		
Result				.000000	**YES**
Part II					
Small	88	$5,595	$12,340,066		
Medium	219	$3,937	$7,567,841		
Large	254	$2,953	$1,458,311		
Universe	907	$4,484	$1,033,243,98		
Result				.796175	**NO**

Notes: 1) All amounts have been rounded to the nearest dollar.
2) State appropriation data obtained from finance module of IPEDS data base.
3) FTE data was calculated based upon specifications of the U.S. Department of Education.

ANOVA analysis of rural campus and the universe of publicly controlled community colleges with a mean of $3,352 indicated a very strong statistical difference existed as the p-value of .000000 was well below the alpha of .05.

As a result, the ANOVA test for Part I determined there was a significant difference among the means of state appropriations per student FTE of small-, medium-, and large-sized rural community colleges in fiscal year 1996-97, and that the means were not statistically equal. Part II of the ANOVA trial determined that reporting fiscal year 1996-97 state appropriations per student FTE for community colleges as a national average *does not* represent fairly rural community colleges, since the means were not statistically equal.

Table 17
Comparison of the Means of State Appropriations per Student FTE for Fiscal Year 1996-97

Groups	Colleges	Average	Variance	P-value	Significant
Part I					
Small	98	$4,489	$9,560,275		
Medium	214	$3,955	$3,328,732		
Large	257	$3,264	$2,008,511		
Result				.000000	**YES**
Part II					
Small	98	$4,489	$9,560,275		
Medium	214	$3,955	$3,328,732		
Large	257	$3,264	$2,008,511		
Universe	892	$3,352	$4,000,723		
Result				.000000	**YES**

Notes: 1) All amounts have been rounded to the nearest dollar.
2) State appropriation data obtained from finance module of IPEDS data base.
3) FTE data was calculated based upon specifications of the U.S. Department of Education.

Table 18 provides a summary of the ANOVA tests to determine whether significant differences existed among the average state appropriations per student FTE of publicly controlled rural campus classifications and universes of publicly controlled community colleges between the two fiscal periods 1992-93 and 1996-97. The ANOVA application in Part I detected a significant difference among the averages of state appropriations per student FTE as the p-value of .000000 was well below the alpha factor of .05.

As a result, the ANOVA test in Part I showed a significant difference existed among the averages of state appropriations per student FTE at publicly controlled rural community colleges when comparing fiscal years 1992-93 and 1996-97 and that the means

Table 18
Comparison of the Means of State Appropriations per Student FTE for Fiscal Years 1992-93 to 1996-37
(adjusted for inflation, constant 1997 dollars)

Groups	Colleges	Average	Variance	P-value	Significant
Part I					
Small	88	$5,596	$12,340,066		
Medium	219	$3,937	$7,567,841		
Large	254	$2,953	$1,458,311		
Small	98	$4,489	$9,560,275		
Medium	214	$3,955	$3,328,732		
Large	257	$3,264	$2,008,511		
Result				.000000	**YES**
Part II					
Small	88	$5,596	$12,340,066		
Medium	219	$3,937	$7,567,841		
Large	254	$2,953	$1,458,311		
Universe	907	$4,484	$1,033,243,98		
Small	98	$4,489	$9,560,275		
Medium	214	$3,955	$3,328,732		
Large	257	$3,264	$2,008,511		
Universe	892	$3,352	$4,000,723,00		
Result				.815624	**NO**

Notes: 1) All amounts have been rounded to the nearest dollar.
2) State appropriation data obtained from finance module of IPEDS data base.
3) FTE data was calculated based upon specifications of the U.S. Department of Education.

were not statistically equal. The ANOVA trial for Part II indicated that reporting a comparison of fiscal years 1992-93 and 1996-97 state appropriations per student FTE for community colleges as a national average *does* fairly represent rural community colleges, since the means were statistically equal.

Local Appropriations

Local government support that is devoted to higher education has almost exclusively for community colleges. This revenue source is typically a property tax administered by the community college's local district. Generally, community colleges use local appropriations they receive to support their operations.

As Table 10 shows, when comparing fiscal years 1992-93 and 1996-97, a review of local appropriations per student FTE showed that as a percentage of total resources this category of revenue had remained fairly steady at roughly 4.3 percent for small rurals, 8.2 percent for medium rurals, and slightly over 13 percent for large rurals. Despite the overall flatness in the percentage of local tax support between the two fiscal periods, the amount of local appropriations per student FTE fell slightly for small- and medium-sized rural campuses while rising modestly at large-sized rural campuses. Small rural campuses experienced the largest decline in local support per student FTE from $479 in fiscal 1992-93 to $436 in fiscal year 1996-97, a decrease of $43 per FTE or 9 percent.

Parts I and II of Table 19 provide a summary of the ANOVA test performed on local appropriations per student FTE for fiscal year 1992-93. Part I indicated that a significant difference existed among the means of small rurals of $464, medium rurals of $774, and large rurals of $1,020. The calculated p-value of .000714 was below the predetermined .05 alpha factor. Additionally, Part II of the ANOVA trial indicated that including the average of local appropriations per student FTE for the universe of publicly controlled community colleges of $1,058 showed an even stronger statistical difference among the means of local appropriations per student FTE as the calculated p-value

Table 19
Comparison of the Means of Local Appropriations per Student FTE for Fiscal Year 1992-93
(adjusted for inflation, constant 1997 dollars)

Group	Colleges	Average	Variance	P-value	Significant
Part I					
Small	88	$464	$1,076,094		
Medium	219	$774	$1,495,916		
Large	254	$1,020	$1,588,940		
Result				.000714	**YES**
Part II					
Small	88	$464	$1,076,094		
Medium	219	$774	$1,495,916		
Large	254	$1,020	$1,588,940		
Universe	907	$1,058	$2,695,854		
Result				.000631	**YES**

Notes: 1) All amounts have been rounded to the nearest dollar.
2) Local appropriation data obtained from finance module of IPEDS data base.
3) FTE data was calculated based upon specifications of the U.S. Department of Education.

equaled .000631 compared to the predetermined alpha factor of .05.

As a result, the ANOVA test for Part I determined there was a significant difference among means of local appropriations per student FTE of small-, medium-, and large-sized rural community colleges in fiscal year 1992-93 and that the means were not statistically equal. Part II of the ANOVA trial determined that reporting fiscal year 1992-93 local appropriations per student FTE for community colleges as a national average *does not* represent fairly rural community colleges, since the means were not statistically equal.

Parts I and II of Table 20 summarize the results of the ANOVA tests for

Table 20
Comparison of the Means of Local Appropriations per Student FTE for Fiscal Year 1996-97

Groups	Colleges	Average	Variance	P-value	Significant
Part I					
Small	98	$486	$1,657,887		
Medium	214	$815	$1,682,726		
Large	257	$1,111	$1,840,267		
Result				.000229	YES
Part II					
Small	98	$486	$1,657,887		
Medium	214	$815	$1,682,726		
Large	257	$1,111	$1,840,267		
Universe	892	$1,083	$2,962,439		
Result				.000730	YES

Notes: 1) All amounts have been rounded to the nearest dollar.
2) Local appropriation data obtained from finance module of IPEDS data base.
3) FTE data was calculated based upon specifications of the U.S. Department of Education.

significant differences in average local appropriations per student FTE among the rural community college campuses and the universe of publicly controlled community colleges for fiscal year 1996-97. In Part I, the ANOVA test generated a p-value of .000229 which was below the predetermined alpha factor indicating that a significant difference did exist among the means of small-, medium-, and large-sized rural campuses. Additionally, comparing the average of local appropriations per student FTE for the universe of publicly controlled community colleges along with the averages of the local appropriations per student FTE for rural community colleges indicated that a significant difference existed among the means.

The ANOVA test for Part I determined there was a significant difference among means of the local appropriations per student FTE of small-, medium-, and large-sized rural community colleges in fiscal year 1996-97, and that the means were not statistically equal. Part II of the ANOVA trial determined that reporting fiscal year 1996-97 local appropriations per student FTE for community colleges, as a national average *does not* represent fairly rural community colleges since the means were not statistically equal.

Parts I and II of Table 21 show the results of the ANOVA tests performed for the averages of local appropriations per student FTE among the small-, medium-, and large-sized rural community colleges and the universe of publicly controlled community colleges between fiscal years 1992-93 and 1996-97. The analysis favored the results already reported in Tables 19 and 20 as both ANOVA tests revealed a significant difference existed among the small-, medium-, large-sized rural campus between the two fiscal periods as well as among the rural campuses and the two universes of publicly controlled community colleges between the two fiscal years. The comparison of the local appropriations per student FTE among the small, medium, and large rural institutions generated a p-value of .000005, well below the alpha factor of .05. Likewise, the averages for local appropriations per student FTE among the rural campuses and the two universes of publicly controlled community colleges between the two fiscal periods produced a p-value of .000013, indicating a highly significant difference existed. Although it is difficult to look solely at averages, the data presents sufficient evidence to support the fact that significant differences exist among the averages for local appropriations per student FTE between the two fiscal periods.

The ANOVA test in Part I showed a significant difference existed among the

Table 21
Comparison of the Means of Local Appropriations per Student FTE for Fiscal Years 1992-93 to 1996-97
(adjusted for inflation, constant 1997 dollars)

Groups	Colleges	Average	Variance	P-value	Significant
Part I					
Small	88	$464	$1,076,094		
Medium	219	$774	$1,495,916		
Large	254	$1,020	$1,588,940		
Small	98	$486	$1,657,887		
Medium	214	$815	$1,682,726		
Large	257	$1,112	$1,840,267		
Result				.000005	**YES**
Part II					
Small	88	$464	$1,076,094		
Medium	219	$774	$1,495,916		
Large	254	$1,020	$1,588,940		
Universe	907	$1,058	$2,695,854		
Small	98	$486	$1,657,887		
Medium	214	$815	$1,682,726		
Large	257	$1,112	$1,840,267		
Universe	892	$1,083	$2,962,439		
Result				.000013	**YES**

Notes: 1) All amounts have been rounded to the nearest dollar.
2) Local appropriation data obtained from finance module of IPEDS data base.
3) FTE data was calculated based upon specifications of the U.S. Department of Education.

averages of local appropriations per student FTE at publicly controlled rural community colleges when comparing fiscal years 1992-93 and 1996-97 and that the means were not statistically equal. The ANOVA trial for Part II indicated that reporting a comparison of fiscal years 1992-93 and 1996-97 local appropriations per student FTE for community colleges, as a national average *does not* represent fairly rural community colleges, since the means were not statistically equal.

Federal Appropriations

A much smaller source of revenue for community colleges is federal appropriations, which originate through direct congressional acts. For this reason, this source of revenue was not intended to be a part of federal funding received through grants, or programs such as Job Training Partnership Act (JTPA) and other workforce development and training programs. Generally, federal funding for job training and workforce development programs are recorded separately and included as revenue from federal grants and contracts. Again, for the analysis of this study, it is counted in workforce development.

For fiscal 1992-93, Parts I and II of Table 22 provide a summary of the ANOVA tests performed on federal appropriations per student FTE. The result shown in Part I indicated a significant difference existed when comparing the rural campus averages for federal appropriations per student FTE among the small rurals of $81, medium rurals of $69, and large rurals of $28. The calculated p-value of .036132 was below the predetermined alpha of .05. However, the ANOVA test in Part II, which compared the average federal appropriations per student FTE for the universe of publicly controlled community colleges of $135 along with the averages for the rural campuses, revealed no significant difference existed as the p-value equaled .540948, and was above the .05 alpha factor.

The ANOVA test for Part I determined there was a significant difference among

Table 22
Comparison of the Means of Federal Appropriations per Student FTE for Fiscal Year 1992-93
(adjusted for inflation, constant 1997 dollars)

Groups	Colleges	Average	Variance	P-value	Significant
Part I					
Small	88	$81	$45,778		
Medium	219	$69	$78,525		
Large	254	$28	$7,183		
Result				.036132	**YES**
Part II					
Small	88	$81	$45,778		
Medium	219	$69	$78,525		
Large	254	$28	$7,183		
Universe	907	$135	$193,219		
Result				.540949	**NO**

Notes: 1) All amounts have been rounded to the nearest dollar.
2) Federal appropriation data obtained from finance module of IPEDS data base.
3) FTE data was calculated based upon specifications of the U.S. Department of Education.

the means of federal appropriations per student FTE of small-, medium-, and large-sized rural community colleges in fiscal year 1992-93, and that the means were not statistically equal. Part II of the ANOVA trial determined that reporting fiscal year 1992-93 federal appropriations per student FTE for community colleges as a national average *does* fairly represent rural community colleges, since the means were statistically equal.

Table 23, Parts I and II, summarize the ANOVA tests performed on the averages of federal appropriations per student FTE among the rural community colleges and the universe of publicly controlled community colleges for fiscal year 1996-97. Specifically, Part I showed that when the ANOVA test was applied a significant difference existed among the averages of federal appropriations per student FTE for the small-, medium-,

Table 23
Comparison of the Means of Federal Appropriations per Student FTE for Fiscal Year 1996-97

Groups	Colleges	Average	Variance	P-value	Significant
Part I					
Small	98	$140	$328,063		
Medium	214	$74	$102,521		
Large	257	$20	$5,369		
Result				.004062	**YES**
Part II					
Small	98	$140	$328,063		
Medium	214	$74	$102,521		
Large	257	$20	$5,369		
Universe	892	$111	$636,610		
Result				.204573	**NO**

Notes: 1) All amounts have been rounded to the nearest dollar.
2) Federal appropriation data obtained from finance module of IPEDS data base.
3) FTE data was calculated based upon specifications of the U.S. Department of Education.

and large-sized rural community colleges. Additionally, with the inclusion of the average federal appropriation per student FTE for the universe of publicly controlled community colleges, the ANOVA test found no significant difference existed among the averages, as the calculated p-value of .204573 was greater than the .05 alpha value.

The ANOVA test for Part I determined there was a significant difference among the means of federal appropriations per student FTE of small-, medium-, and large-sized rural community colleges in fiscal year 1996-97, and that the means were not statistically equal. Part II of the ANOVA trial determined that reporting fiscal year 1996-97 federal appropriations per student FTE for community colleges as a national average *does* fairly represent rural community colleges since the means were statistically equal.

Parts I and II of Table 24 show the ANOVA tests performed on the means of federal appropriations per student FTE among the rural campuses and the two universes of publicly controlled community colleges between fiscal periods 1992-93 to 1996-97. Part I determined a significant difference existed among the small-, medium-, and large-sized rural community colleges between the two fiscal periods, as reflected in the calculated p-value of .001455 being smaller than the .05 alpha factor. However, the result for Part II indicated no significant difference existed with the averages of federal appropriations per student FTE among the rural campuses and the universes of publicly controlled community colleges between fiscals years 1992-93 and 1996-97. In fact, the calculated p-value of .574357 was notably greater than the predetermined .05 alpha level.

The ANOVA test in Part I showed a significant difference existed among the averages of federal appropriations per student FTE at publicly controlled rural community colleges when comparing fiscal years 1992-93 and 1996-97 and that the means were not statistically equal. The ANOVA trial for Part II indicated that reporting a comparison of fiscal years 1992-93 and 1996-97 federal appropriations per student FTE for community colleges as a national average *does* fairly represent rural community colleges, since the means were statistically equal.

Tuition & Fees Revenue

Tuition and fees are the charges for instruction and all of the direct and indirect costs associated with the education process. At public institutions, tuition and fees are

Table 24
Comparison of the Means of Federal Appropriations per Student FTE for Fiscal Years 1992-93 to 1996-97
(adjusted for inflation, constant 1997 dollars)

Groups	Colleges	Average	Variance	P-value	Significant
Part I					
Small	88	$82	$45,778		
Medium	219	$69	$78,525		
Large	254	$29	$7,183		
Small	98	$140	$328,063		
Medium	214	$74	$102,521		
Large	257	$20	$5,369		
Result				.001455	**YES**
Part II					
Small	88	$82	$45,778		
Medium	219	$69	$78,525		
Large	254	$29	$7,183		
Universe	907	$135	$193,219		
Small	98	$140	$328,063		
Medium	214	$74	$102,521		
Large	257	$20	$5,369		
Universe	892	$111	$636,610		
Result				.574357	**NO**

Notes: 1) All amounts have been rounded to the nearest dollar.
2) Federal appropriation data obtained from finance module of IPEDS data base.
3) FTE data was calculated based upon specifications of the U.S. Department of Education.

usually the second major source of revenue behind state appropriations. In general, state tuition and fees policies are inversely related to the levels of state support. Lenington (1996) commented that the dependence on tuition makes higher education vulnerable to a decline in student enrollment (p. 79).

For fiscal year 1992-93, Parts I and II of Table 25 provide a summary of the

Table 25
Comparison of the Means of Tuition & Fees Revenue per Student FTE for Fiscal Year 1992-93
(adjusted for inflation, constant 1997 dollars)

Groups	Colleges	Average	Variance	P-value	Significant
Part I					
Small	88	$1,904	$2,477,448		
Medium	219	$1,619	$768,876		
Large	254	$1,521	$406,291		
Result				.004340	**YES**
Part II					
Small	88	$1,904	$2,477,448		
Medium	219	$1,619	$768,876		
Large	254	$1,521	$406,291		
Universe	907	$2,202	$247,889,676		
Result				.045373	**YES**

Notes: 1) All amounts have been rounded to the nearest dollar.
2) Tuition and fees revenue data obtained from finance module of IPEDS data base.
3) FTE data was calculated based upon specifications of the U.S. Department of Education.

averages of tuition and fees revenue per student FTE for the small-, medium-, and large-sized rural community colleges. The average amounts of tuition and fees revenue per student FTE equaled $1,904 for small rurals, $1,619 for medium rurals, and $1,521 for large rurals. The ANOVA test calculated p-value of .004340 was below the predetermined alpha level of .05 indicating a significant difference existed among the means for tuition and fees revenue per student FTE of rural campuses. Additionally, Part II demonstrated a significant difference when including the mean tuition and fees revenue per student FTE for the universe of publicly controlled community colleges.

The ANOVA test for Part I revealed there was a significant difference among the means of tuition and fees per student FTE of small-, medium-, and large-sized rural community colleges in fiscal year 1992-93, and that the means were not statistically equal. Part II of the ANOVA trial determined that reporting fiscal year 1992-93 tuition and fees per student FTE for community colleges as a national average *does not* represent fairly rural community colleges since the means were not statistically equal.

Table 26, Parts I and II, provide a summary of the ANOVA trials for the testing of the means of tuition and fees revenue per student FTE in fiscal year 1996-97. Interestingly, both ANOVA tests indicated that no significant differences existed in tuition and fees revenue per student FTE among the rural community colleges or among the rural institutions and the universe of publicly controlled community colleges.

The ANOVA test for Part I, revealed there was no significant difference among the tuition and fees revenue per student FTE of small-, medium-, and large-sized rural community colleges in fiscal year 1996-97, and that the means were statistically equal. Part II of the ANOVA trial determined that reporting fiscal year 1996-97 tuition and fees revenue per student FTE for community colleges as a national average *does* fairly represent rural community colleges, since the means were statistically equal.

Parts I and II of Table 27 summarize the ANOVA applications comparing the means of tuition and fees revenue per student FTE of rural institutions and the two universes of publicly controlled community colleges between the two fiscal years, 1992-93 and 1996-97. The ANOVA test in Part I revealed that the means for tuition and fees revenue per student FTE among small, medium, and large rural populations showed a significant difference existed, as the p-value of .008236 was below the predetermined

Table 26
Comparison of the Means of Tuition & Fees Revenue per Student FTE for Fiscal Year 1996-97

Groups	Colleges	Average	Variance	P-value	Significant
Part I					
Small	98	$1,698	$1,369,024		
Medium	214	$1,752	$682,990		
Large	257	$1,680	$529,974		
Result				.657117	**NO**
Part II					
Small	98	$1,698	$1,369,024		
Medium	214	$1,752	$682,990		
Large	257	$1,680	$529,974		
Universe	892	$1,771	$1,254,903		
Result				.612135	**NO**

Notes: 1) All amounts have been rounded to the nearest dollar.
2) Tuition and fees revenue data obtained from finance module of IPEDS data base.
3) FTE data was calculated based upon specifications of the U.S. Department of Education.

alpha factor. The comparison in Part II for the means of tuition and fees revenue per student FTE among rural community colleges and the universe of publicly controlled community colleges found no significant difference existed among the means between the two fiscal periods.

The ANOVA test in Part I showed a significant difference existed among the averages of tuition and fees revenue per student FTE at publicly controlled rural community colleges when comparing fiscal years 1992-93 and 1996-97, and that the means were not statistically equal. The ANOVA trial for Part II indicated that reporting a comparison of fiscal years 1992-93 and 1996-97 tuition and fees revenue per student FTE for community colleges as a national average *does* fairly represent rural community

Table 27
Comparison of the Means of Tuition & Fees Revenue per Student FTE for Fiscal Years 1992-93 & 1996-97
(adjusted for inflation, constant 1997 dollars)

Groups	Colleges	Average	Variance	P-value	Significant
Part I					
Small	88	$1,904	$2,477,448		
Medium	219	$1,619	$768,876		
Large	254	$1,521	$406,291		
Small	98	$1,698	$1,369,024		
Medium	214	$1,752	$682,990		
Large	257	$1,680	$529,974		
Result				.008236	**YES**
Part II					
Small	88	$1,904	$2,477,448		
Medium	219	$1,619	$768,876		
Large	254	$1,521	$406,291		
Universe	907	$2,202	$247,889,676		
Small	98	$1,698	$1,369,024		
Medium	214	$1,752	$682,990		
Large	257	$1,680	$529,974		
Universe	892	$1,771	$1,254,903		
Result				.949889	**NO**

Notes: 1) All amounts have been rounded to the nearest dollar.
2) Tuition and fees revenue data obtained from finance module of IPEDS data base.
3) FTE data was calculated based upon specifications of the U.S. Department of Education.

colleges, since the means were statistically equal.

Endowment Income

Endowment income is generated through the investment of monies that are accumulated by the college and held in a permanent fund. Income earned by the investment fund is often used to help meet an institution's operating expenses. For community colleges, endowment funds are generally small and yield little interest income, as reflected by the average values of endowment income per student FTE shown in Tables 28 and 29.

Table 28 summarizes ANOVA tests of the means of endowment income per student FTE for rural community colleges and the universe of publicly controlled community colleges for fiscal year 1992-93. Part I indicated that no significant difference existed among the means of small rurals of $5, medium rurals of $5, and large rurals of $5 as the calculated p-value of .934682 exceeded the alpha level of .05. The analysis in Part II showed that, including the average endowment income per student FTE of $29 for the universe of publicly controlled community colleges, no significant difference existed among the populations as the p-value .689205 was greater than the alpha value of .05.

The ANOVA test for Part I determined there was no significant difference among the means of endowment income per student FTE of small-, medium-, and large-sized rural community colleges in fiscal year 1992-93 and that the means were statistically equal. Part II of the ANOVA tests determined that reporting fiscal year 1992-93 endowment income per student FTE for community colleges as a national average *does* fairly represent rural community colleges, since the means were statistically equal.

Table 29 summarized the ANOVA tests performed on the averages of endowment income per student FTE for rural community colleges and the universe of publicly controlled community colleges for fiscal year 1996-97. Part I showed there is no significant difference between the mean values of endowment income per student FTE for small-, medium-, and large-sized rural community colleges. Likewise, the comparison in

Table 28
Comparison of the Means of Endowment Income per Student FTE for Fiscal Year 1992-93
(adjusted for inflation, constant 1997 dollars)

Groups	Colleges	Average	Variance	P-value	Significant
Part I					
Small	88	$5	$506		
Medium	219	$5	$330		
Large	254	$5	$299		
Result				.934682	**NO**
Part II					
Small	88	$5	$506		
Medium	219	$5	$330		
Large	254	$5	$299		
Universe	907	$29	$228,964		
Result				.689205	**NO**

Notes: 1) All amounts have been rounded to the nearest dollar.
2) Endowment income data obtained from finance module of IPEDS data base.
3) FTE data was calculated based upon specifications of the U.S. Department of Education.

Part II included the mean of endowment income per student FTE for the universe of publicly controlled community colleges along with the means of endowment income per student FTE for the rural campuses, indicated no significant difference among the mean values. The ANOVA test for Part I determined there was no significant difference among the averages of endowment income per student FTE of small-, medium-, and large-sized rural community colleges in fiscal year 1996-97, and that the means were statistically equal. Part II of the ANOVA trial determined that reporting fiscal year 1996-97 endowment income per student FTE for community colleges as a national average *does* fairly represent rural community colleges, since the averages were statistically equal.

Parts I and II of Table 30 provide a summary of the ANOVA tests of the averages

Table 29
Comparison of the Means of Endowment Income per Student FTE for Fiscal Year 1996-97

Groups	Colleges	Average	Variance	P-value	Significant
Part I					
Small	98	$8	$2,141		
Medium	214	$5	$226		
Large	257	$6	$537		
Result				.645575	NO
Part II					
Small	98	$8	$2,141		
Medium	214	$5	$226		
Large	257	$6	$537		
Universe	892	$20	$127,310		
Result				.827004	NO

Notes: 1) All amounts have been rounded to the nearest dollar.
2) Endowment income data obtained from finance module of IPEDS data base.
3) FTE data was calculated based upon specifications of the U.S. Department of Education.

among the rural community colleges and universes of publicly controlled community colleges between the two fiscal periods of 1992-93 and 1996-97. Both Parts I and II revealed no significant differences when comparing the means of endowment income per student FTE for small, medium, and large rural community colleges and the universe of fiscal years 1992-93 and 1996-97 endowment income per student FTE for community colleges of publicly controlled community colleges. The ANOVA test shown in Part I for small-, medium-, and large-sized rural community colleges calculated a p-value of .840877, well above the predetermined alpha level of .05. Similarly, in Part II, the ANOVA test calculated a p-value of .909760, again well above the predetermined alpha

Table 30
Comparison of the Means of Endowment Income per Student FTE for Fiscal Years 1992-93 and 1996-97
(adjusted for inflation, constant 1997 dollars)

Groups	Colleges	Average	Variance	P-value	Significant
Part I					
Small	88	$5	$506		
Medium	219	$5	$330		
Large	254	$5	$299		
Small	98	$8	$2,141		
Medium	214	$5	$226		
Large	257	$6	$537		
Result				.840877	NO
Part II					
Small	88	$5	$506		
Medium	219	$5	$330		
Large	254	$5	$299		
Universe	907	$29	$228,964		
Small	98	$8	$2,141		
Medium	214	$5	$226		
Large	257	$6	$537		
Universe	892	$20	$127,310		
Result				.909760	NO

Notes: 1) All amounts have been rounded to the nearest dollar.
2) Endowment income data obtained from finance module of IPEDS data base.
3) FTE data was calculated based upon specifications of the U.S. Department of Education.

level. The ANOVA test in Part I showed no significant difference existed among the averages of endowment income per student FTE at publicly controlled rural community colleges when comparing fiscal years 1992-93 and 1996-97, and that the means were statistically equal. The ANOVA trial for Part II concluded that reporting a comparison as a national average *does* fairly represent rural community colleges since the means were statistically equal.

Private Gifts and Contracts

Private gifts and contracts are funds that community colleges receive from donors and for services provided under contract. A comparison of the averages for fiscal years 1992-93 and 1996-97 shows that this source of revenue has grown and become more important in balancing institutional budgets. The ANOVA results are reflected in Tables 31 through 33.

Parts I and II of Table 31 provide a summary of the ANOVA testing revealed no significant differences among the means for private gifts and grants income per student FTE for fiscal year 1992-93. Part I indicated there is no significant difference among the means of small-, medium-, and large-sized rural community colleges, as the calculated P-value of .397848 exceeded the .05 alpha value. Part II of the ANOVA trial indicated no significant difference when including the comparison of the average private gifts and grants income per student FTE for the universe of publicly controlled community colleges. The calculated p-value of .855219 was also above the predetermined alpha factor of .05. The ANOVA test for Part I determined there was no significant difference among the means of private gifts and grants per student FTE of small-, medium-, and large-sized rural community colleges in fiscal year 1992-93 and that the means were statistically equal. Part II of the ANOVA trial determined that reporting fiscal year 1992-93, private gifts and grants per student FTE for community colleges as a national average *does* represent fairly rural community colleges, since the means were statistically equal.

Parts I and II of Table 32 indicate the results of using ANOVA to test the means

Table 31
Comparison of the Means of Private Gifts &Grants Income per Student FTE for Fiscal Year 1992-93
(adjusted for inflation, constant 1997 dollars)

Groups	Colleges	Average	Variance	P-value	Significant
Part I					
Small	88	$86	$53,073		
Medium	219	$77	$16,805		
Large	254	$65	$8,896		
Result				.397848	NO
Part II					
Small	88	$86	$53,073		
Medium	219	$77	$16,805		
Large	254	$65	$8,896		
Universe	907	$193	$10,435,789		
Result				.855219	NO

Notes: 1) All amounts have been rounded to the nearest dollar.
2) Private gifts and grants income data obtained from finance module of IPEDS data base.
3) FTE data was calculated based upon specifications of the U.S. Department of Education.

of private gifts and grants income per student FTE of rural community colleges and the universe of publicly controlled community colleges for fiscal year 1996-97. Part I tested the means among small rurals of $154, medium rurals of $120, and large rurals of $86, and found no significant difference existed. Additionally, the ANOVA analysis in Part II tested the averages of the private gifts and contracts income per student FTE of the rural community colleges and the universe of publicly controlled community colleges, and found no significant difference existed.

As a result, the ANOVA test for Part I determined there was no significant difference among the means of private gifts and grants income per student FTE of small-, medium-, and large-sized rural community colleges in fiscal year 1996-97, and that the

Table 32
Comparison of the Means of Private Gifts & Grants Income per Student FTE for Fiscal Year 1996-97

Groups	Colleges	Average	Variance	P-value	Significant
Part I					
Small	98	$154	$235,423		
Medium	214	$120	$56,487		
Large	257	$86	$20,774		
Result				.080636	**NO**
Part II					
Small	98	$154	$235,423		
Medium	214	$120	$56,487		
Large	257	$86	$20,774		
Universe	892	$113	$71,611		
Result				.168706	**NO**

Notes: 1) All amounts have been rounded to the nearest dollar.
2) Private gifts and grants income data obtained from finance module of IPEDS data base.
3) FTE data was calculated based upon specifications of the U.S. Department of Education.

means were statistically equal. Part II of the ANOVA test determined that reporting fiscal year 1996-97 private gifts and grants income per student FTE for community colleges as a national average *does* represent fairly rural community colleges, since the means were statistically equal.

Parts I and II of Table 33 summarize the ANOVA analysis performed on the averages of private gifts and contracts income per student FTE among the rural community colleges and the universe of publicly controlled community colleges for fiscal periods 1992-93 and 1996-97. Specifically, Part I showed that a significant difference existed among the means of the small-, medium-, and large-sized community colleges between the fiscal periods has the calculated p-value of .003627, well below the .05 alpha

Table 33
Comparison of the Means of Private Gifts & Grants Income per Student FTE for Fiscal Years 1992-93 to 1996-97
(adjusted for inflation, constant 1997 dollars)

Groups	Colleges	Average	Variance	P-value	Significant
Part I					
Small	88	$86	$53,073		
Medium	219	$77	$16,805		
Large	254	$65	$8,896		
Small	98	$154	$235,423		
Medium	214	$120	$56,487		
Large	257	$86	$20,774		
Result				.003627	**YES**
Part II					
Small	88	$86	$53,073		
Medium	219	$77	$16,805		
Large	254	$65	$8,896		
Universe	907	$193	$10,435,789		
Small	98	$154	$235,423		
Medium	214	$120	$56,487		
Large	257	$86	$20,774		
Universe	892	$113	$71,611		
Result				.964174	**NO**

Notes: 1) All amounts have been rounded to the nearest dollar.
2) Private gifts and grants income data obtained from finance module of IPEDS data base.
3) FTE data was calculated based upon specifications of the U.S. Department of Education.

value. In Part II, the ANOVA analysis included the means of private gifts and contracts income per student FTE for the universe of publicly controlled community colleges along with the averages for the rural community colleges. The calculated p-value of .96174 was greater than the alpha factor of .05, indicating that when comparing fiscal years 1992-93 and 1996-97, no significant difference existed among and between the means of private gifts and contracts income per student FTE. As a result, the ANOVA test in Part I showed a significant difference existed among the averages of private gifts and contracts income per student FTE at publicly controlled rural community colleges when comparing fiscal years 1992-93 and 1996-97, and that the means were not statistically equal. The ANOVA trial for Part II concluded that reporting a comparison of fiscal years 1992-93 and 1996-97 private gifts and contracts income per student FTE for community colleges as a national average *does* fairly represent rural community colleges, since the means were statistically equal.

Education & General Expenditures

A review of the financial data presented in Tables 12 and 13 showed that total education and general (E&G) expenditures per student FTE had held fairly steady, ranging from 92 percent to 95 percent of total current fund expenditures in both the 1992-93 and 1996-97 fiscal periods. E&G expenditures offer another approach to reviewing the amount of relative resources devoted to instruction, research, academic support, and public service at colleges and universities. When comparing these categories of expenditures, they typically represent a little over half of the total E&G expenditures, while the remaining portion of E&G expenditures are used to cover support services such as plant operations and institutional scholarships and fellowships. It is interesting to note that a comparison of fiscal years 1992-93 and 1996-97 revealed that employee compensation for education and general activities has declined as a percentage of total current fund expenditures at each of the three rural institution classifications. This expense normally consumes more than 60 percent of an institution's current fund budget. That rural community colleges spent less of their total revenues on employee salaries and benefits necessarily means that they have had to reduce institutional costs, since their unrestricted operating resources have had much less flexibility.

Parts I and II of Table 34 show the ANOVA trials used to test the averages of E&G expenditures per student FTE for fiscal year 1992-93. Part I indicated a significant difference existed among the means of small-, medium-, large-sized rurals as the calculated p-value of .000000 was well below the predetermined .05 alpha factor. Moreover, the ANOVA test in Part II revealed a significant difference existed among the averages for small-, medium-, and large-sized rural community colleges and the universe of publicly controlled community colleges. Again the p-value of .000000 was well below the minimum .05 alpha value needed to show significance.

As a result, the ANOVA test for Part I determined there was a significant difference among the means of education and general expenditures per student FTE of small-, medium-, and large-sized rural community colleges in fiscal year 1992-93, and that the means were not statistically equal. Part II of the ANOVA trial determined that reporting fiscal year 1992-93 education and general expenditures per student FTE for community colleges as a national average *does not* represent fairly rural community colleges, since the means were not statistically equal.

Parts I and II of Table 35 summarize the ANOVA tests for significance among the means of the rural campuses and the universe of publicly controlled community colleges for fiscal year 1996-97. Both ANOVA trials indicated a significant difference existed

Table 34
Comparison of the Means of Education & General Expenditures per Student FTE for Fiscal Year 1992-93
(in constant 1997 dollars)

Groups	Colleges	Average	Variance	P-value	Significant
Part I					
Small	88	$10,591	$31,104,517		
Medium	219	$8,287	$13,105,798		
Large	254	$7,257	$3,814,997		
Result				.000000	**YES**
Part II					
Small	88	$10,591	$31,104,517		
Medium	219	$8,287	$13,105,798		
Large	254	$7,257	$3,814,997		
Universe	907	$8,003	$28,007,664		
Result				.000000	**YES**

Notes: 1) All amounts have been rounded to the nearest dollar.
2) General and education expenditures data obtained from finance module of IPEDS data base.
3) FTE data was calculated based upon specifications of the U.S. Department of Education.

among the averages of E&G expenditures per student FTE for small-, medium-, and large-sized rural institutions and for the universe of publicly controlled community colleges. The calculated p-values were .000000 and .000002, respectively, and both well below the .05 alpha factor.

Thus, there was a significant difference among the means of education and general expenditures per student FTE of small-, medium-, and large-sized rural community colleges in fiscal year 1996-97, and that the means were not statistically equal. Part II of the ANOVA trial determined that reporting fiscal year 1996-97 education and general expenditures per student FTE for community colleges as a national average *does not* represent fairly rural community colleges, since the means were not statistically equal.

Table 35
Comparison of the Means of Education & General Expenditures per Student FTE for Fiscal Year 1996-97

Groups	Colleges	Average	Variance	P-value	Significant
Part I					
Small	98	$9,736	$11,612,438		
Medium	214	$8,748	$4,063,711		
Large	257	$8,010	$3,500,290		
Result				.000000	**YES**
Part II					
Small	98	$9,736	$11,612,438		
Medium	214	$8,748	$4,063,711		
Large	257	$8,010	$3,500,290		
Universe	892	$8,444	$9,532,372		
Result				.000002	**YES**

Notes: 1) All amounts have been rounded to the nearest dollar.
2) Education and general expenditures data obtained from finance module of IPEDS data base.
3) FTE data was calculated based upon specifications of the U.S. Department of Education.

Parts I and II of Table 36 provide a summary of the ANOVA tests for determining whether significant differences exist among and between the means of E&G expenditures for fiscal years 1992-93 and 1996-97. Part I indicated a significant difference existed when comparing the averages of E&G expenditures among the small-, medium-, and large-sized rural community colleges between the two fiscal periods. In a similar manner, the ANOVA test in Part II compared the means among the rural institutions and the means of the universe of publicly controlled community colleges for fiscal years 1992-93 and 1996-97. It was determined that a significant difference existed among the populations between the two fiscal years. Both calculated p-values were .000000, well below the predetermined alpha value of .05. As a result, the ANOVA test in Part I showed a

Table 36

Comparison of the Means of Education & General Expenditures per Student FTE for Fiscal Years 1992-93 to 1996-97

(adjusted for inflation in constant 1997 dollars)

Groups	Colleges	Average	Variance	P-value	Significant
Part I					
Small	88	$10,591	$31,104,517		
Medium	219	$8,287	$13,105,798		
Large	254	$7,257	$3,814,997		
Small	98	$9,736	$11,612,438		
Medium	214	$8,748	$4,063,711		
Large	257	$8,010	$3,500,290		
Result				.000000	**YES**
Part II					
Small	88	$10,591	$31,104,517		
Medium	219	$8,287	$13,105,798		
Large	254	$7,257	$3,814,997		
Universe	907	$8,003	$26,007,664		
Small	98	$9,736	$11,612,438		
Medium	214	$8,749	$4,063,711		
Large	257	$8,010	$3,500,290		
Universe	892	$8,442	$9,532,372		
Result				.000000	**YES**

Notes: 1) All amounts have been rounded to the nearest dollar.
2) Education and general expenditures data obtained from finance module of IPEDS data base.
3) FTE data was calculated based upon specifications of the U.S. Department of Education.

significant difference existed among the means of education and general expenditures per student FTE at publicly controlled rural community colleges when comparing fiscal years 1992-93 and 1996-97, and that the means were not statistically equal. The ANOVA trial for Part II showed that reporting a comparison of fiscal years 1992-93 and 1996-97 education and general expenditures per student FTE for community colleges as a national average *does not* represent fairly rural community colleges, since the means were not statistically equal.

Auxiliary Enterprises Expenditures

Campus activities generally include auxiliary enterprises, which account for those expenditures not directly related to the education process. These are often referred to as non-educational expenditures, and include activities such as campus bookstores or dining services. Tables 37 through 40 provide the results of using the ANOVA statistical technique to determine whether significant differences existed among the averages of rural community colleges and the universe of publicly controlled community colleges.

Table 37 provides a summary of the ANOVA tests of the means of auxiliary enterprises expenditures per student FTE at rural campuses and the universe of publicly controlled community colleges for fiscal year 1992-93. Part I indicated that no significant difference existed among the means of small-, medium-, and large-sized rural community colleges, since the calculated p-value of .232256 exceeded the alpha factor. Part II also concluded that no significant difference existed among the means of auxiliary enterprises expenditures per student FTE of rural campuses and the universe of publicly controlled community colleges, as the calculated p-value of .059106 was slightly above the predetermined .05 alpha factor. As a result, the ANOVA test for Part I determined no significant difference among the means of auxiliary enterprises expenditures per student FTE of small-, medium-, and large-sized rural community colleges in fiscal year 1992-93,

Table 37

Comparison of the Means of Auxiliary Enterprises Expenditures per Student FTE for Fiscal Year 1992-93

(adjusted for inflation, constant 1997 dollars)

Groups	Colleges	Average	Variance	P-value	Significant
Part I					
Small	88	$594	$687,625		
Medium	219	$638	$291,973		
Large	254	$552	$168,543		
Result				.232256	**NO**
Part II					
Small	88	$594	$687,625		
Medium	219	$638	$291,973		
Large	254	$552	$168,543		
Universe	907	$523	$365,382		
Result				.059106	**NO**

Notes: 1) All amounts have been rounded to the nearest dollar.
2) Auxiliary enterprises expenditures data obtained from finance module of IPEDS data base.
3) FTE data was calculated based upon specifications of the U.S. Department of Education.

and that the means were statistically equal. Part II of the ANOVA trial determined that reporting fiscal year 1992-93 auxiliary enterprises expenditures per student FTE for community colleges as a national average *does* fairly represent rural community colleges, since the means were statistically equal.

Parts I and II of Table 38 summarize the ANOVA testing for significant differences among the means of the rural community colleges and universe of publicly controlled community colleges for fiscal year 1996-97. In Part I, the ANOVA test determined no significant difference among the means of small rurals of $528, medium rurals of $640, and large rurals of $587, as the calculated p-value of .150400 exceeded the

Table 38
Comparison of the Means of Auxiliary Enterprises Expenditures per Student FTE for Fiscal Year 1996-97

Groups	Colleges	Average	Variance	P-value	Significant
Part I					
Small	98	$528	$249,387		
Medium	214	$640	$262,437		
Large	257	$587	$203,081		
Result				.150400	**NO**
Part II					
Small	98	$528	$249,387		
Medium	214	$640	$262,437		
Large	257	$587	$203,081		
Universe	892	$532	$223,031		
Result				.015753	**YES**

Notes: 1) All amounts have been rounded to the nearest dollar.
2) Auxiliary enterprises expenditures data obtained from finance module of IPEDS data base.
3) FTE data was calculated based upon specifications of the U.S. Department of Education.

.05 alpha factor. Additionally, the ANOVA analysis in Part II tested the means of the rural institutions and the mean for the universe of publicly controlled community colleges, and found a significant difference existed as the calculated p-value of .015753 was below the alpha value of .05. As a result, the ANOVA test for Part I determined there was no significant difference among the means of auxiliary enterprises expenditures per student FTE of small-, medium-, and large-sized rural community colleges in fiscal year 1996-97, and that the means were statistically equal. Part II of the ANOVA trial determined that reporting fiscal year 1996-97 auxiliary enterprises expenditures per student FTE for community colleges as a national average *does not* represent fairly rural community colleges, since the means were not statistically equal.

Table 39 indicates the ANOVA test results performed on the means of auxiliary enterprises expenditures per student FTE among the rural institutions and among the two universe of publicly controlled community colleges for fiscal years 1992-93 and 1996-97. Part I showed the ANOVA test found no significant difference existed among the rural campuses between the two fiscal periods. The calculated p-value of .248546 was above the .05 alpha factor. However, in Part II the ANOVA trial of the means of the auxiliary enterprises expenditures per student FTE among the small-, medium-, and large-sized rural community colleges and the universe of publicly controlled community colleges between the two fiscal periods, and determined that a significant difference existed as the calculated p-value of .015139 was below the predetermined .05 alpha value. As a result, the ANOVA test in Part I showed no significant difference existed among the averages of auxiliary enterprises expenditures per student FTE at publicly controlled rural community colleges when comparing fiscal years 1992-93 and 1996-97, and that the means were statistically equal. The ANOVA trial for Part II concluded that reporting a comparison of fiscal years 1992-93 and 1996-97 auxiliary enterprises expenditures per student FTE for community colleges as a national average *does not* represent fairly rural community colleges, since the means were not statistically equal.

Education & General Expenditures - Employee Compensation

As mentioned above, E&G expenditures for employee compensation per student FTE generally range near 60 percent of the total E&G expenditures. A review of Tables 11 and 12 showed a slight drop in E&G expenditures for employee compensation as a

Table 39

Comparison of the Means of Auxiliary Enterprises Expenditures per Student FTE for Fiscal Years 1992-93 to 1996-97

(adjusted for inflation, constant 1997 dollars)

Groups	Colleges	Average	Variance	P-value	Significant
Part I					
Small	88	$594	$687,625		
Medium	219	$638	$291,973		
Large	254	$552	$168,543		
Small	98	$528	$249,387		
Medium	214	$640	$262,437		
Large	257	$587	$203,081		
Result				.248546	**NO**
Part II					
Small	88	$594	$687,625		
Medium	219	$638	$291,973		
Large	254	$552	$168,543		
Universe	907	$523	$365,382		
Small	98	$528	$249,387		
Medium	214	$640	$262,437		
Large	257	$587	$203,081		
Universe	892	$532	$223,031		
Result				.015139	**YES**

Notes: 1) All amounts have been rounded to the nearest dollar.
2) Auxiliary enterprises expenditures data obtained from finance module of IPEDS data base.
3) FTE data was calculated based upon specifications of the U.S. Department of Education.

percentage of total E&G expenditures. Interestingly, each ANOVA test indicated that a significant difference existed among and between the means for E&G expenditures for employee compensation per student FTE including the fiscal periods 1992-93 and 1996-97. More specifically, the ANOVA results demonstrate differences in employee compensation patterns among rural campuses and the universe of publicly controlled community colleges.

Table 40 provides a summary of the ANOVA applications used to test for significant differences among the various means of E&G expenditures for employee compensation per student FTE for fiscal year 1992-93. Part I indicated a significant difference existed among the means of small rurals of $6,588, medium rurals of $5,270, and large rurals of $4,604, as the calculated p-value of .000000 was well below the alpha value of .05. Also, Part II showed a significant difference existed among the averages of the rural campuses and the mean of the universe of publicly controlled community colleges, as the calculated p-value of .000001 was well below the alpha level. Thus, the ANOVA test for Part I determined there was a significant difference among the means of E&G expenditures for employee compensation per student FTE of small-, medium-, and large-sized rural community colleges in fiscal year 1992-93 and that the means were not statistically equal. Part II of the ANOVA trial determined that reporting fiscal year 1992-93 E&G expenditures for employee compensation per student FTE for community colleges as a national average *does not* represent fairly rural community colleges, since the means were not statistically equal.

Parts I and II of Table 41 summarize the ANOVA testing for significance among the means of the rural institutions and the universe of publicly controlled community colleges for fiscal year 1996-97. Part I showed that a significant difference existed among the averages of E&G expenditures for employee compensation per student FTE of small rurals of $6,043, medium rurals of $5,430, and large rurals of $5,057. The calculated p-value of .000004 was well below the predetermined alpha factor of .05. In Part II, the

Table 40
Comparison of the Means of E&G Expenditures for Employee Compensation per Student FTE for Fiscal Year 1992-93
(adjusted for inflation, constant 1997 Dollars)

Groups	Colleges	Average	Variance	P-value	Significant
Part I					
Small	88	$6,588	$6,873,357		
Medium	219	$5,270	$7,002,319		
Large	254	$4,604	$1,803,941		
Result				.000000	**YES**
Part II					
Small	88	$6,588	$6,873,357		
Medium	219	$5,270	$7,002,319		
Large	254	$4,604	$1,803,941		
Universe	907	$5,163	$11,192,082		
Result				.000001	**YES**

Notes: 1) All amounts have been rounded to the nearest dollar.
2) Education and general expenditures for employee compensation was data obtained from finance module of IPEDS data base.
3) FTE data was calculated based upon specifications of the U.S. Department of Education.

ANOVA test for significant difference included the average of E&G expenditures for employee compensation per student FTE for the universe of publicly controlled community colleges. The test determined a significant difference existed among the means for fiscal year 1996-97. The ANOVA test for Part I determined there was a significant difference among the means of E&G expenditures for employee compensation per student FTE of small-, medium-, and large-sized rural community colleges in fiscal year 1996-97, and that the means were not statistically equal. Part II of the ANOVA trial determined that reporting fiscal year 1996-97 E&G expenditures for employee compensation per student FTE for community colleges as a national average *does not* represent fairly rural

Table 41
Comparison of the Means of E&G Expenditures for Employee Compensation per Student FTE
Fiscal Year 1996-97

Groups	Colleges	Average	Variance	P-value	Significant
Part I					
Small	98	$6,043	$6,392,030		
Medium	214	$5,430	$2,169,959		
Large	257	$5,057	$1,897,066		
Result				.000004	**YES**
Part II					
Small	98	$6,043	$6,392,030		
Medium	214	$5,430	$2,169,959		
Large	257	$5,057	$1,897,066		
Universe	892	$5,291	$4,107,980		
Result				.000170	**YES**

Notes: 1) All amounts have been rounded to the nearest dollar.
2) Education and general expenditures for employee compensation data was obtained from finance module of IPEDS data base.
3) FTE data was calculated based upon specifications of the U.S. Department of Education.

community colleges, since the means were not statistically equal.

Parts I and II of Table 42 indicate the results of applying the ANOVA test to the means among the rural institutions and the two universes of publicly controlled community colleges for fiscal years 1992-93 and 1996-97. In Part I, the test found that the means of E&G employee compensation per student FTE among the rural campuses revealed a significant difference existed between the two fiscal years, since the calculated p-value of .000000 was well below the alpha level. Part II compared the means among the rural institutions and the universe of publicly controlled community colleges for the two fiscal

Table 42
E&G Expenditures - Employee Compensation per Student FTE
Fiscal Years 1992-93 to 1996-97
(adjusted for inflation, constant 1997 dollars)

Groups	Colleges	Average	Variance	P-value	Significant
Part I					
Small	88	6,588	6,873,357		
Medium	219	5,270	7,002,319		
Large	254	4,604	1,803,941		
Small	98	5,163	6,392,030		
Medium	214	5,430	2,169,959		
Large	257	5,057	1,897,066		
Result				.000000	**YES**
Part II					
Small	88	6,588	6,873,357		
Medium	219	5,270	7,002,319		
Large	254	4,604	1,803,941		
Universe	907	5,163	11,192,082		
Small	98	6,043	6,392,030		
Medium	214	5,430	2,169,959		
Large	257	5,057	1,897,066		
Universe	892	5,291	4,107,980		
Result				.000000	**YES**

Notes: 1) All amounts have been rounded to the nearest dollar.
2) Education and general expenditures for employee compensation data was obtained from finance module of IPEDS data base.
3) FTE data was calculated based upon specifications of the U.S. Department of Education.

periods, and determined a significant difference existed. Again the calculated p-value equaled .000000 and was well below the predetermined alpha factor of .05. The ANOVA test in Part I showed a significant difference existed among the averages of E&G expenditures for employee compensation per student FTE at publicly controlled rural community colleges when comparing fiscal years 1992-93 and 1996-97, and that the means were not statistically equal. The ANOVA trial for Part II concluded that reporting a comparison of fiscal years 1992-93 and 1996-97 E&G expenditures for employee compensation per student FTE for community colleges as a national average *does not* represent fairly rural community colleges, since the means were not statistically equal.

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